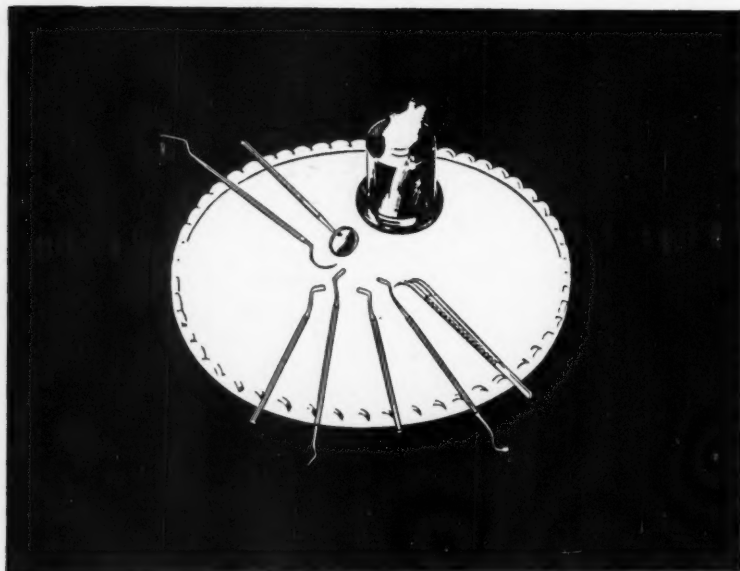




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SEPTEMBER - 1950

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# The DENTAL *Journal* OF AUSTRALIA

Vol. 22

September, 1950

No. 9

## CONTENTS

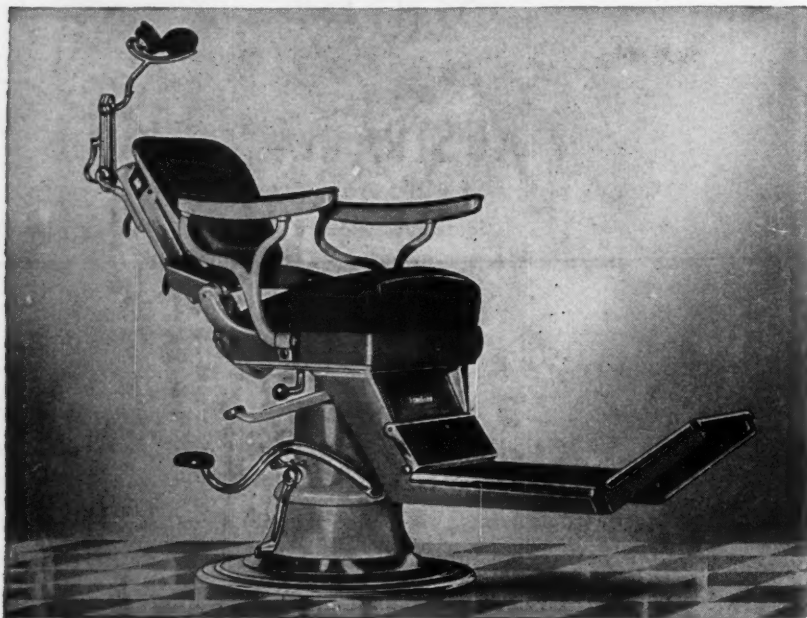
<b>COMMUNICATIONS:</b>		<b>Page</b>
Practice management. R. N. Peverill .....		399
Relines, rebases or transfers and repairs. Wilfrid H. Terrell .....		411
Immediate restorations for complete dentures. Wilfrid H. Terrell .....		424
The New Zealand experiment in dental services. Robert Harris .....		437
Dental materials. Current notes (No. 3) .....		453
 <b>EDITORIAL DEPARTMENT:</b>		
The Success of Congress .....		455
Opening Ceremony .....		456
An Appreciation .....		464
 <b>CORRESPONDENCE:</b>		
"Airbrasive" .....		467
 <b>NEWS AND NOTES:</b> .....		468
 <b>ASSOCIATION ACTIVITIES:</b> .....		470

*Editor:* ROBERT HARRIS, M.D.S.

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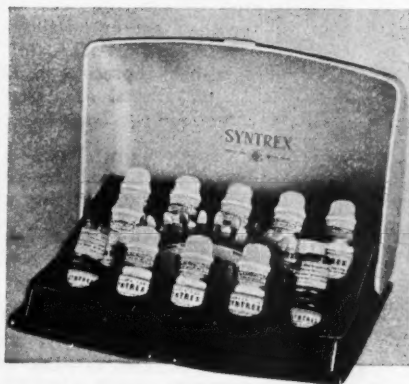
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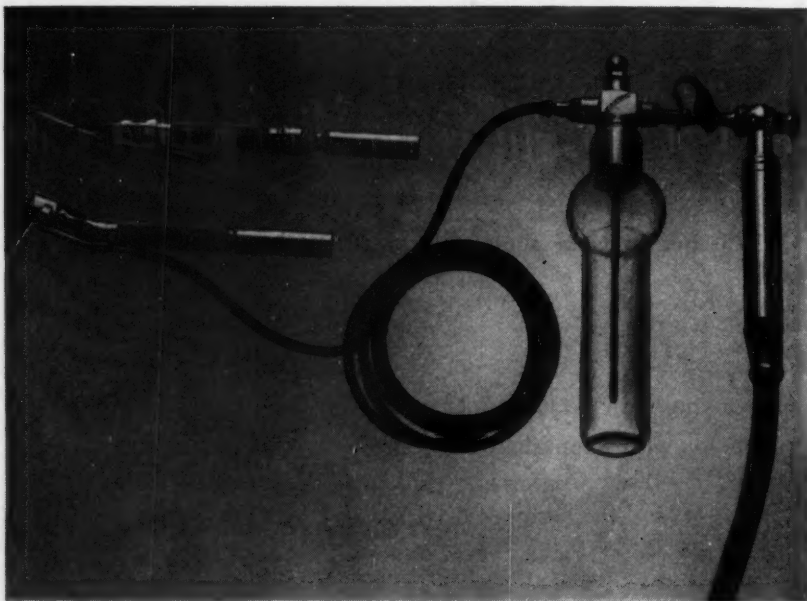
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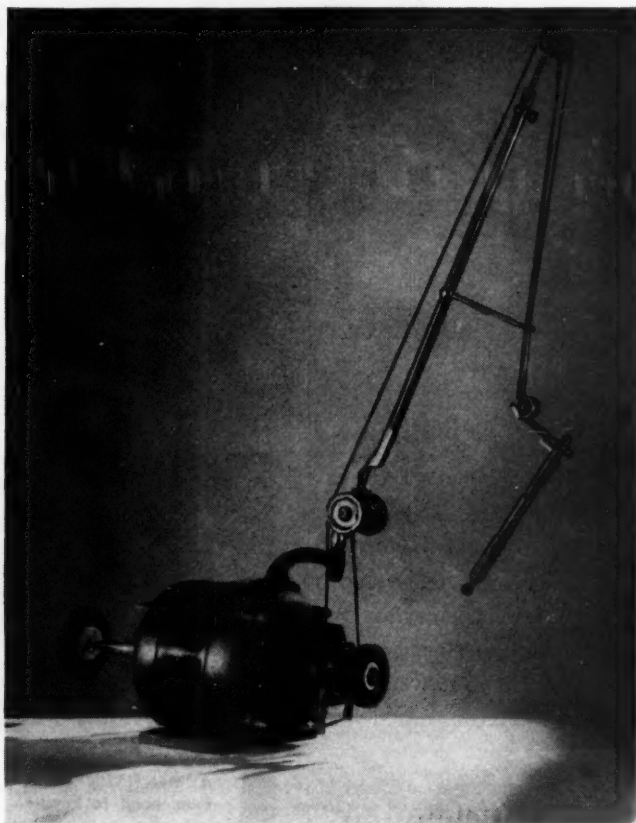
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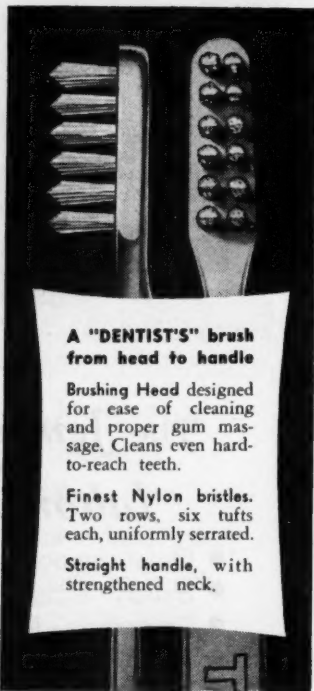
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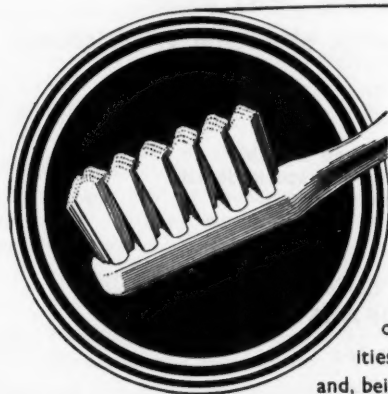
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AUSTRALIA

Vol. 22

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No. 9

PRACTICE MANAGEMENT\*

R. NOEL PEVERILL, B.D.Sc., L.D.S.

Knowledge of practice management is only one of those things that are required to attain success in dentistry, but the complete subject is much too big to cover in an address of this nature. May I, therefore, outline those factors that I think are essential for success in dentistry, and then concentrate in some detail on the practice management part of that subject.

Most members of our profession possess the necessary skill and knowledge to cope successfully with the *scientific* problems of an active practice.

How many are there who possess the necessary basic information relating to practice management which enables them to make a *material success* of conducting a dental practice? I think that you will all agree that our road to material success appears much more difficult than that of our neighbours, and I believe that this is true, and not just another instance of the old saying that "distant fields look greener." Such being the case, what are we going to do about it?

Might I suggest that, first of all, we take a look at a definition of success—"Success in any field of endeavour means the attainment of a definite end or purpose." In dentistry, success can be defined as the complete accomplishment of two objectives:

- (1) *The performance of the highest standard of professional service in the relief of the dental ills of mankind.*
- (2) *The sure and safe provision for the financial and social requirements of oneself and dependants.*

The first objective is the goal towards which the members of our profession have directed their time and energies and have, we feel, accomplished some small measure of success.

What about the second objective? This is more individualised in its attainment. Have we, as individuals, recognised this second objective? And if so, have we planned our campaign and gone about the accomplishment of our purpose in the most economical and efficient way?

\*From a lecture given at a meeting of the Australian Dental Association (New South Wales Branch), June 27, 1950.



I have presumed for the purpose of this paper, to name seven roads which I consider lead towards the accomplishment of our two objectives. These are as follow:—

1. Technical ability and enthusiasm.
2. Organising capacity.
3. Administrative efficiency.
4. Human understanding—
  - (a) Know thyself.
  - (b) Know mankind.
5. Professional and civic relations.
6. Physical and mental fitness.
7. Ability to plan for a secured future.

It is with a purpose that I have called these seven factors "roads." My purpose is to convey the impression that they are separate lines of approach, varied in their starting points and variable in their degree of development, and reaching their destination only when all of them have at last joined to form the main highway which leads with speed to *success*.

#### 1. TECHNICAL ABILITY AND ENTHUSIASM.

The need for progressive study and the practice of new techniques is obvious to all, hence our post-graduate educational activities, but the "enthusiasm" part of this road may not have been connected in your minds with technical ability. May I, therefore, make the point that technical ability without enthusiasm to do our best at all times can leave us with a very long and ill-formed road to the ultimate destination—*success*. Enthusiasm should be the force which drives us in our aim for improved technical ability. Personal satisfaction, greater rewards and applause from our fellow-workers may be concomitant, but are not, in themselves, sufficiently powerful if enthusiasm for the job in hand is missing.

But of what value is technical ability, even though laced with enthusiasm, if the dentist spends a large proportion of his time doing those things which do not require his technical ability. Thus we come to the second road or factor:

#### 2. ORGANISING CAPACITY.

The dentist must organise and control his practice in an executive capacity. He must delegate routine procedures of administration to competent personnel and supervise their efficient operation. Whether the dentist employs one assistant or many is wholly irrelevant. The theory and application of dental administrative principles is alike for an organisation of two or twenty. Let us therefore consider some of the fields where organisation can play its part.

##### (i) Organisation of the suite of rooms.

In considering the layout of our rooms, some of the points which come readily to mind are:—

The Reception and Waiting Room may be one and the same room, but it is better to have some privacy for the receptionist, even if only a glassed-in corner of the waiting room, but it must be suitable for private interviews and telephone conversations.

The waiting room should be capable of supervision by the receptionist at all times and should not be open to the public gaze from outside the building.

Probably the most important thing about a waiting room is that it must be placed in such a position that the operator cannot be intercepted in any of his normal movements from one room to another.

You will all agree that one operator needs at least two surgeries, even in these days of inter-osseous injections, and distance between these two surgeries must be reduced to a minimum. In fact, this reduction of distance must be considered in all movements of the operator, whether it be in relation to placing of furniture in a room or the many trips during the day between the various rooms in the suite.

(ii) *Organisation of individual rooms.*

In the surgeries themselves layout should be such that a minimum of movement is required. The tendency today is to have surgeries which are too large. The instrument cabinet should be within reach of the operator, and our working methods should be organised so that the nurse need not move forward of the chair while the operator is working. This means a workbench and cupboard for the nurse behind the chair position, and the steriliser should be part of the nurse's equipment. A mobile surgical table previously prepared can be moved into a position handy to the operator after he has taken his place at the chairside.

How much consideration have you given to that lovely writing desk which means so much extra movement in its use? Might I suggest that a desk capable of use in the standing position will save much time, energy and floor space. To answer the obvious objection that you may feel called to raise to this suggestion, let me, at this stage, mention something that I will deal with in more detail later, and that is: *the dental chair and, in fact, the surgery, is not, in my opinion, the place for a discussion of fees. It is designed for the giving of the service for which we are trained.*

(iii) *Organisation of the duties of the staff.*

It is essential that each member of the staff, including the dentist himself, should have a clear picture of the duties expected of him. Remember the old routine orders of our Service days? There was much to be said for them, and I recommend a set of something similar for the personnel of a dental practice. It is certainly a "must", when taking on a new member for the staff, to have a written copy of the duties required and their method of execution. Even though the new staff member may have spent many years in another dental practice, the division of duties and their method of execution will never be just as you would have them.

May I, at this stage, give you my ideas on that all too frequent need in the average practice, that is, "the selection and training of a new dental nurse."

The very first thing to be done in order to tackle this problem, and it can be a problem, is to list the duties that you will require to be done. You are then in a position to start interviewing your prospective nurse, having a clear

picture in your mind of just what type of person you will require in order to do those duties.

Now for the matter of the training of the new nurse: when she reports for the first day, she should be given a written list of duties and you should set aside sufficient time to allow you to give an interview at which these duties can be discussed. Then, make time available for the girl to become familiar with the practice and its routine. Set aside a definite time each day to review these duties and the way they are being executed until your nurse is satisfactory. When a good foundation for co-operative relationship has been established, it is then a relatively easy matter to maintain it. Remember you cannot expect your assistant to be a thought reader. Remember, also, once a responsibility has been delegated, do not interfere or even indicate a lack of faith in the assistant's ability to accept that responsibility; particularly remember no criticism in front of a third person, please, either by word or deed.

*(iv) Organisation of the duties of the dentist.*

The dentist who uses his valuable time doing those things that a £6 10s. 0d. per week nurse can do is not a good executive, and I question whether he is a good dentist, for he is probably one of those who is forced to say no to patients requiring emergency relief from pain, because there is no time available to give this service; in other words, he does not live up to the first objective which we have defined as necessary in attaining success in dentistry.

The list of duties for the dentist is an easy one to prepare. Write down all those things which need doing and then delegate everything possible to the staff. Now don't be too hasty—you will still find that you will leave a list which requires more of your time than is available; but you are at least in a position now to give priorities and to set about organising your time to cope with it. May I take this opportunity of suggesting a few routines which have been found a help in saving the time of the dentist and his staff.

*Standardisation of techniques.*

As individual operators we all develop our own particular ways of doing various types of work. It may seem axiomatic but I would stress the need for a standardisation of your individual technique. For instance, in making an examination and charting a patient's mouth, even the little matter of starting always at the same position in the jaw and going systematically round the mouth will help both you and your nurse in the saving of time required for this particular procedure. And if your examination is further standardised so that you do the same things in the same order with every patient, you will find that both you and the person doing the charting are less likely to make mistakes of omission and remission.

To take another instance—the work to be done is a Class 2 amalgam filling. How much easier it is for you and your nurse if you can standardise your procedure in such a way that you both not only know what instruments you will require, but have a fixed order in which these instruments will be used. Enough said about this; you can and probably have organised many of these standardised techniques in your own practices.

(v) *Organisation of the patient.*

A competent nurse should be responsible for the seating of the patient in the dental chair, the placing of the standard requirements on the bracket table for the type of treatment to be given, and the tabling of the patient's treatment card, together with a note of the proposed work and resume of the conversation held with the patient at the previous visit.

It is important, in my opinion, that the operator should be in a position to study the treatment card and the note of the work planned for the visit, *before* any conversation with the patient is necessary. The operator who starts off with the words: "Now, what am I going to do today?" does not inspire confidence, and what is more to the point, time spent in re-examining and making a new plan for the work to be done on the occasion of each visit is a shameful waste. Nearing the completion of the day's service, the operator should dictate the entries to be made on the card, using code where necessary, and mentioning fee or otherwise as thought fitting. Then one must plan for the next visit which will include the work to be done and the time required to do this work, and an indication of any requirement for the fixing of the appointment date.

At this stage the busy operator will be anxious to move to another room and continue with his work on another patient and, just as a competent nurse can be made responsible for the preparation of the patient before treatment, so can she be trained to do those things which are necessary in dismissing the patient and preparing for the next.

This suggested routine makes it possible for an operator to spend only that time with a patient that the technical service requires; in other words, delegation has been used to its ultimate.

Similar routine for the handling of patients and situations arising in daily practice, both in the office and the surgery, should receive the earnest attention of every practitioner.

*A routine for the education of parents on the subject of Preventive Dentistry.*

Most parents are interested in methods for the preservation of children's teeth, but unfortunately quite a number of these parents are inclined to use the subject matter as an excuse for doing most of the talking at the expense of the dentist's operating time. This must be overcome, and the following routine is a suggestion towards this end:

A parent who is interested in this subject of prevention should be encouraged, but not at the expense of the operator's time. If thirty minutes per week are set aside in the appointment book for a talk to an organised meeting of parents, the operator and his receptionist have then a very easy way of preventing the theft of operating time, and your knowledge of human understanding will quickly make you realise how much easier it is to speak to a number of parents without undue interruption. If this thirty-minute period is well organised, the lectures and demonstrations can be presented much better than in an *ad lib.* conversation. Advantage can also be taken of supplying charts so that the parents can record food and habits for a period of seven days, and perhaps a little home work for the parent in the points given in the lecture will help them to appreciate your efforts. The food records and the homework can

be checked and, at a subsequent meeting, criticized in a manner that will be of value to the parent.

Might I suggest that this routine will eliminate some parents who are not really interested but are the ones who take up most of our time if allowed to discuss this type of subject during normal surgery hours, particularly if Little Willie has a mouth indicating poor oral hygiene, which we have brought to his and the parent's notice, and the parent feels that some form of explanation is necessary.

Finally, this routine has also this advantage—"The labourer is worthy of his hire"—but it is not an easy matter to get a fee for the odd few minutes' conversation yet, by making an appointment for this talk, no difficulty will be found in charging a fee and the multiplication of this fee can make of the thirty minutes time well spent, both from the point of view of essential education and financial reward.

### 3. ADMINISTRATIVE EFFICIENCY.

Of what value is the organisation of rooms and the duties of personnel, the standardisation of techniques, with the resultant increase in productivity, if there is a lack of records?

We all know that detailed patients' records are essential for the purpose of future treatment and as a means of personal protection for the dentist.

Other records are equally essential for such things as fees and fee assessments, credits and payments, purchases, and business research in dental practice.

Patients' treatment cards should be designed to facilitate the recording of:

- (1) Treatment.
- (2) Time spent in productive work in each department.
- (3) Value of the service given at each visit.

The other essential records should follow the design laid down in simple book-keeping. Remember to bank every penny received and pay out all amounts by cheque with the help of a petty cash system. This is an essential for even the simplest form of book-keeping. A double-entry system, incorporating a record of work done and its value according to departments, a cashbook showing receipts and daily bankings, and a ledger showing the details of individual accounts of patients, should be the normal system in every practice.

May I at this stage stress the need for a double-entry system, which means that each transfer from one book to another is checked automatically by the fact that that transfer is made from two separate sources.

The need for business research makes a system for the recording of analyses of expenses and the recording of treatments, divided into departments, essential.

The following are suggested headings for these two sets of analyses:



## Analysis of Expenses : (Card for each department).

Wages Tax Deductions	Payroll Tax Rates Insurance	Repairs Maintenance	Light Fuel	Stamps Telephone	Materials	Travel	Station- ery	Laundry	Sundries	Drawings	Capital Expenses	Bank

## Analysis of Work Done : (Card for each operator or day-book analysis).

Date	Anaesthetics		Conservative		Exodontia		Orthodontia		Periodontia		Prosthetics		Radiology		TOTAL	
	Min- utes	£ s. d.	Min- utes	£ s. d.	Min- utes	£ s. d.	Min- utes	£ s. d.	Min- utes	£ s. d.	Min- utes	£ s. d.	Min- utes	£ s. d.	Min- utes	£ s. d.

### Costing.

For those who are interested in business research, a departmentalised day-book for future costings should include a record of the time spent productively in each department. This time factor, in my opinion, is not the basis from which fees should be computed but, when taken into consideration with the analysis of expenses and work done, is all important in the matter of budgeting and the consequent necessity for adjustments to the scale of fees.

Our grandfathers established a scale of fees covering all departments of dental service and, because of competition or lack of ability in one particular department, were quite happy to have the "swings" carry the "merry-go-round."

We, as a profession, still compute our fees for individual departments on the scale first laid down by grandpapa. How silly we are! Can you imagine the managing director of an old-established business accepting, as his own, prices established by his forebears who lived in totally different economic conditions? Let us then set about the task of costing the services given in each department of our profession and, with the help of costing accountants, draw up a scale of fees for each State capital and also the main provincial cities, based on the actual costs for each department for, until such time as the profession as a whole realises the need for a considerable adjustment in fees, just so long will we have our two main problems, namely:

- (1) *The illegal plate-making mechanic wanting to join us, and*
- (2) *The unprofitable child patient deprived of dental treatment.*

For those who would like to try their hand at costing, here is a simple *pro forma* which, when used in conjunction with the analysis of expenses and work done over a given period, will enable the user to determine the margin existing for each particular department.

METHOD OF COSTING.

Item	Indirect Expenses	Anaesthetics	Conservative	Exodontia	Orthodontia	Periodontia	Prosthetics	Radiology
Wages								
Pay roll tax								
Light and fuel								
Stamps and telephone								
Stationery								
Materials								
Repairs and maintenance								
Travelling								
Rates, taxes								
Insurance								
Laundry								
Sundries								
Depreciation								
Own salary								
Apportioned Indirect Expenses								
TOTALS								

N.B. You need records covering a period of twelve months, and these records should show the hours of productive work done for each department, both for staff and operator. Indirect expenses are apportioned on the basis of the time factor recorded for each department.

The results of costing, although not accurate to the penny with a simple *pro forma* such as this, will still be sufficiently accurate, and certainly sufficiently startling, to make everyone agree with me that a national costing project should be initiated immediately for, while some departments still show a pleasant margin of profit, each man in his own practice with his own fees and overhead expenses will find that there are certainly some "merry-go-round" departments which are very much dependent on the profit-making ones.

*Fees and fee assessments.*

Whatever your scale of fees may be, it is a good business policy to give a fee assessment before the case is started, and to make a notation of the amount assessed on the patient's record card, together with the agreed plan for payments. The only time to discuss the method of payment is before the services are commenced, that is, when the fee assessment is given, for then the subject can be approached easily and naturally without embarrassment to receptionist or patient, and *remember* the dentist is the one extending the credit and who is therefore entitled to the privilege of dictating the terms. The presentation of fees must be done with precision and without fear, and there must be no idea in the patient's mind of individual bargaining. The value of an established scale of fees and the fact that others have and do accept them is much better than an obvious clutching at the air for what the patient may be justly entitled to think is merely a wild guess at the value of the services that are to be given. May I make this point again:—*Fees should be assessed in the office and not in the dental chair.* Frankness from the outset should be the dentist's watchword. Tend to err on the side of over-estimation rather than be in the position of trying to sell extra service after the case is completed.

Finally in the matter of this fee assessment, I should like to reiterate that the only real reasons for not giving an assessment fee in advance are:—

- (1) The dentist has no system for setting up a correct estimate.
- (2) He is afraid that he will under-estimate.
- (3) He is afraid that he will lose the patient because the fee may appear too high.

*Credits and collections.*

By credit is meant the transfer of goods or services in trust and in confidence of future and prompt payment. It should be recognised by both dentist and patient that the extension of credit is a courtesy and not an obligation on the part of the dentist. The dentist should assume the dominant position and courteously, but firmly, state the terms of credit extension. He is then in a favourable position to discuss a compromise if the patient requests other arrangements.

In the matter of collections, the main reasons for non-payment are:—

- Poverty.
- Dishonesty.
- Misunderstandings.
- Unsatisfactory service.

In the case of the first—poverty—this will be revealed when the fee assessment is given and can be dealt with at that stage.

In the case of the other three reasons for non-payment, the collection of accounts will prove difficult and I do not propose to discuss ways and means for collection, but would like to suggest that the best method is prevention. In other words, Utopia is reached when collections are no longer a problem because there is no credit given and, consequently no accounts to collect. For those who cannot arrange this Utopian type of credit system, I should like to make one point clear:—The account system must be organised on a basis whereby monthly statements are issued to all patients for whom work has been done during that month. No matter how small the account may be, a monthly statement, issued promptly at the end of the month, will at least give the recipient confidence in the accuracy of the records kept, and perhaps act as a reminder that you, the dentist, are efficient and worthy of being entrusted with his dental care.

*Summary of the point made in the discussion of practice management as treated under the headings of Organisation and Administration.*

The points made under the headings of Organising Ability and Administrative Efficiency may be summarised thus:

- (a) Orderly and systematic arrangement of the rooms of the suite and of the furniture and equipment in each room.
- (b) Adoption of a standardised technique and definite instrumentation in operative and laboratory procedures.
- (c) Proper assignment and division of the duties of the dentist and members of his staff.
- (d) Routine for handling patients and situations arising in daily practice, both in the office and the surgery.
- (e) Use of business methods in record-keeping, extension of credit, and collection of fees.

#### 4. HUMAN UNDERSTANDING.

This particular road is quite commonly called "psychology" but, being one of little courage, I am afraid that I have purposely avoided that nomenclature.

(a) *Know thyself.* "One cannot hope to be all things to all people." Let us then evaluate our own traits and idiosyncrasies and, where we cannot correct the deleterious, we must try to avoid those situations which bring them to the fore. This knowledge of oneself should be an important factor in the choice of locality in which to practise. It should be a guide to the branch of dental art on which we may decide to concentrate. Finally, it should govern our civic as well as our professional activities.

(b) *Know mankind*, as represented by your patients. It is not an easy task to place people into separate categories, but it is possible to classify one's methods of handling the various types of patients, and a technique can be developed for each type with advantage to both patient and operator. It may be a little harsh, but there is some truth in the words of Dr. J. J. Walsh—"In spite of our advances in dental knowledge it is still true that it is just as important to know what sort of patient has a disease, as to know what sort of a disease a patient has." Some of the more obvious types have been classified as follows:—

(1) The suspicious, due to the fact that he is sceptical, distrustful or frightened. You all know the sceptic who has made up his mind that he will

never be able to wear dentures, the distrustful who does not want you to put any more holes in his teeth, the frightened who, through inborn fear not based on lack of confidence, is suspicious of everything you do. All these need careful education to allay their suspicions and, when confidence has been gained, can quite often be numbered among your best patients.

(2) The humble (inferiority complex): this type of patient will agree with all that is said without, in truth, making any decision for himself but, after reflection or discussion at home, will not be happy with the plans made or even the work done and can become a dissatisfied patient. One of our modern jingles which goes "Your lips tell me NO, NO, but there's YES, YES in your eyes" is the antithesis to the theme-song of the humble. Their theme-song is YES, YES to one's face and NO, NO to their friends. The method of dealing with this type of patient is, of course, to have a relative or friend present at the consultation.

(3) The third is the patient suffering from resentment, pique, or anger. He is impatient with a new denture, he seldom smiles and, like Atlas, carries the world's woes on his shoulders. He dislikes almost everything and is an enthusiastic exponent of pessimism. In handling this type of patient, it is wise to start off by not interrupting his first spate of words. Remember "Anger unnurtured by contradiction cannot survive indefinitely." When his ire has abated he is a much more complacent listener and a compromise may then be effected with benefit to both parties.

(4) The fourth is the chronic complainer. The patient feels that, unless he complains about something, he will not get his full measure of service. Courtesy, care, and consideration are required with even these irritating people. Personal interest is the treatment for this type.

In fact, personalised interest makes for success in all cases. Know your patients' names, aims and hobbies; share in their victories and sympathise with their sorrows (remember the resume of the conversation at their last visit which the nurse has attached to the patient's treatment card).

Build up the patient's ego by being prepared to listen to his story (but not for too long). Try to praise wherever possible. In fact, remember the Golden Rule—"Do unto others as ye would that they should do unto you." This is a very sketchy treatment of a subject on which many authorities have each written volumes, but it is hoped that a mention of its importance will induce a renewed impetus for individual research. A knowledge of human understanding is essential for the accomplishment of all seven roads which lead to *success*. Remember, success in dentistry is largely the result of a continuous building up of confidence in the dentist and his abilities.

Of what use is technical ability and enthusiasm if the patient will not accept the treatment prescribed? Our first objective is defeated before we start and, if the treatment prescribed is acceptable and a reasonable fee for the service is not forthcoming, where, then, is our second objective?

Pursue this question of human understanding further for yourselves, for on a thorough knowledge of oneself and of the genus "*homo sapiens*" depends so much in life.

##### 5. PROFESSIONAL AND CIVIC RELATIONS.

"Service before Self"—the motto of a well-known international organisation—fits naturally into the moral pattern of the average dentist. This motto

applied in our professional and civic life will earn a mead of praise during our lifetime and a "Well done, thou good and faithful servant" when the day of reckoning comes.

#### 6. PHYSICAL AND MENTAL FITNESS.

Each person must develop this road according to individual tastes and requirements, but without mental and physical fitness all other roads become harder to follow.

#### 7. ABILITY TO PLAN FOR A SECURED FUTURE.

Remember that the working life of a Dental General Practitioner is only 30 years (age 25 to 55). I know that many struggle on for longer than this period, and some who have been successful have organized their practices in such a way that after 30 years the more arduous work is done by assistants, thus allowing them to continue in the particular department that suits their physical capacities; but the average dentist must plan to use his income in such a way as to allow him to look forward to a secured future after the age of 55 without the need for the full pressure required in a one-man general practice.

I have had the temerity to jot down the following rules for the use of surplus income:

- (1) Invest in sufficient life insurance, as a safeguard for the family in case of accident, for in the early years the average dentist has, as his only assets, his dexterity and his knowledge.
- (2) Use the humble Savings Bank account. Deposit a regular amount at the end of each month until the sum of £500 is reached, then carry on until you have another £500 in Government bonds.
- (3) Any further surplus income after the regular payment into the Savings Bank account is best re-invested in your own practice, provided that you don't buy gadgets. Before buying any new equipment, materials or assistance, ask yourself the question: "Will this outlay return me better than bank interest and give me a sinking fund to cover depreciation?" If the answer is in the negative, *don't buy*.
- (4) If your practice is fully capitalized, I would suggest that you have then, and only then, reached the stage where Stocks and Shares should be allowed to interest you. Remember that the advice of a reputable broker is worth the commission fee, and the first maxim is—regard the security of principal as the first and most important consideration in every investment plan.
- (5) If you must speculate, do so with surplus income only and, if you lose, don't call on your carefully built up assets to try and recoup yourself.
- (6) I like Real Estate, particularly if it can be purchased at the bottom of a market; but for those who are just starting out on their dental career and are combining marriage with it—think twice before spending capital on a home if it is possible to rent a suitable place. The cheapest commodity on the market today is rent—if you can find it.

In conclusion, let me reiterate the definition of *success in dentistry*: it is the complete accomplishment of *two* objectives:

1. The performance of the highest standard of professional service in the relief of the dental ills of mankind.
2. The sure and safe provision for the financial and social requirements of oneself and one's dependants.



## RELINES, REBASES OR TRANSFERS AND REPAIRS\*

WILFRID HALL TERRELL, D.D.S., F.A.C.D., PASADENA.

No denture is permanent and it is a misnomer to call dentures "permanent dentures." As we know, and as has been brought out, the mouth is continually changing and in order to give our patients good denture service it is necessary not only to construct a good case in the beginning but to be able to service those dentures for the patient for many years to come. Servicing the dentures means keeping them in proper function. There is a settling of the ridges which causes a closure of intermaxillary space affecting aesthetics as far as the amount of tooth that shows and also affecting the expression about the mouth when the mouth is closed. These are a few of the changes which need to be watched as well as retention. Some men say they would rather use a flat mechanical tooth than an anatomical tooth so that as the ridges resorb and the mandible moves forward there will not be a locking of the teeth. I would rather have the teeth fitting in centric occlusion and guided there by anatomical form and when closure takes place, if soreness should develop, it is a warning that there has been a major change and that the vertical opening should be re-established. There was a proper overbite and overjet for the aesthetics and function of the case when it was constructed, and the loss of this when the mandible slips forward means that not only the patient's appearance is materially affected but that function and comfort are certainly decreased and there is no guide to tell us where it belongs.

The point has been made by many that trauma develops as the result of resorption of the ridges when anatomical teeth are used. I have been using anatomical tooth forms in my dentures for about twenty-five years now but have been taking particular pains to see that the cases are balanced and that there are no points of cuspal interference. I have seen but a very few cases where anterior-posterior relationship has been lost as the result of resorption, for the teeth have been guided to a centric position. If the teeth are properly balanced, even soreness seldom develops to serve as a warning that the denture space should be re-established. However, general appearance usually shows this and measurements from profile records can be used to measure it. You and I have seen lots of cases built with flat cusp teeth in which there has been a closure and the mandible has slipped far forward of the position in which the case was constructed. The patient has nothing to hold those dentures in proper relation to each other. Ridges will resorb under dentures regardless of whether the teeth are flat or anatomical in form. Neither type of tooth functions properly in an over-closed relationship. After we purchase a new car we do not expect to wear it out without servicing. By proper servicing of that car its life can be extended and its value to its owner greatly increased. It functions properly and causes little trouble. Servicing of dentures is just as important as servicing a car. Patients should not expect to have those dentures last them the rest of their lives without a certain amount of servicing. Either they should be serviced or new dentures made about every seven to ten years in order to keep up with the changes. If the fact that these changes are going to occur has not been explained to patients in the beginning, they are apt to blame the dentist for the fact that their dentures do not properly function or look as well as they originally did and the chances are,

\*Read at the Twelfth Australian Dental Congress.

they will find a new dentist next time. They might be interested in new dentures due to the fact that there is a continual advancement in denture materials and teeth and, as you know, we can build much better dentures today than we could ten years ago. We are going to see many improvements within the next ten years.

I do not reline, rebase or transfer other men's dentures, but this service is available for all patients for whom I have made the originals. Aesthetics and function can both be easily lost in this process unless a precision technique is followed.



Fig. 1.—Heater for Impression Gel.

Before going further, let's define these different terms. The definitions which I give are not from a dictionary, but I think will explain what I mean.

(1) Relining is giving the denture a new acrylic lining. It is done by taking an impression in the dentures and replacing this impression material with new plastic. In this process, a layer of the old acrylic is removed and the borders are cut back in order to get a good union of the new material with the old. (2) Rebasing and Transferring are identical terms in meaning. They are the constructing of a new denture base around the original teeth. This is done by taking an impression in the denture (Fig. 1.) and then, after preserving the position and relation of the teeth to the ridges, the denture base is entirely replaced with new material. In other words, we have given those teeth a base of new acrylic. If the posterior teeth have been ground or worn, these can be replaced with new posteriors during this process for we have done this successfully many times. The original anterior teeth, if done as an immediate restoration, will not be disturbed. We do very little relining. Our relining is confined principally to partial dentures. Obviously, the charge for transferring must be more than for relining as there is much more work involved, but it makes a denture like new when completed. The completion of our immediate restoration six weeks or later after the case has been inserted is always done by transferring.

The following is the technique used for rebasing and putting the front in an immediate restoration. After removing all the undercuts, the tissue surface of the upper denture (Fig. 2.) is painted with the impression material to be used and gently settled to place. The best way to seat the denture without exerting a greater pressure on one side than on the other is to press in the centre of the vault upward and slightly backward parallel with the path of insertion. Since there is apt to be protrusion in taking such an impression and due to the fact that the settling of the upper denture is usually upward



Fig. 2.—Impressions made with Impression Gel.

and forward, it is important that this impression be seated in an upward and backward direction. No heavy pressure is exerted whatsoever and when the denture has been seated as far as is required for aesthetics, all pressure is released and the material is allowed to set with the tissues at rest. When the impression is removed it is examined for any necessary corrections and after these are made the chair is placed in a horizontal position and special impression plaster or Truplastic is mixed. This is placed around the entire peripheral border and across the anterior. It is done in the same manner as the final impression for the upper denture in our precision technique with the patient closing on wet cotton rolls while it is applied. The patient is instructed to move the lips forward and backward as in whistling and smiling. The cheeks and lips are then pressed inward to mould the border and eliminate excessive thickness at any point. Usually in the anterior there is very little thickness required on the peripheral border and care should be taken that it is not left too thick. It is better to mould the border to the thickness we expect to have in the completed denture than it is to leave it over-extended and have to grind it down later. When the impression is thoroughly set, the patient rinses the mouth with water and the impression is carefully removed. We then mark the line for the post dam and the palatal seal of the upper with indelible pencil and this is transferred to the impression. The lower impres-

sion is taken in the same manner and next a protrusive wax bite (Fig. 3.) is taken, being careful to stop the patient's closure just before the incisors contact. Next, Kerrs Plastic Wax, which is a very soft low-fusing wax similar to

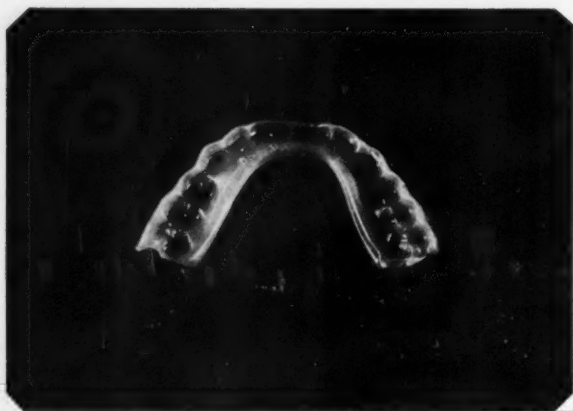


Fig. 3.—Protrusive Wax Bite.

carding wax in consistency (Fig. 4.), is flowed on the occlusals of the upper posterior teeth. The chair is again placed in a horizontal position with the head well back and the patient is instructed to move the mandible forward and backward until the heads of the condyles reach the posterior surfaces of the glenoid fossae.

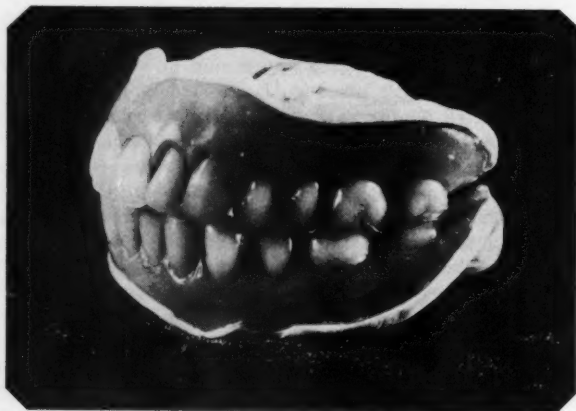


Fig. 4.—After Impressions are complete, Centric is taken in soft wax.

The dentures are then put in place, the patient is instructed to roll the tongue as far back in the roof of the mouth as possible, and when the mandible is back with the condyles in the glenoid fossae, the patient is instructed to

close slowly and lightly into the wax which has been placed on the upper teeth. Have him close several times with a light tapping motion. It will be found, if the mandible is back in position, that the patient will continually strike in exactly the same spot. This is repeated many times until the tips of the porcelain are beginning to contact. Any pressure beyond this point would introduce malocclusion. If there has been closure of the bite it can be opened by the impressions and the occlusion can be re-established by this method. After taking impressions for all transfers or relines, the occlusion should always be re-established. Patients will develop a protrusive bite but the greatest comfort will be had when the centric of the dentures corresponds with the centric jaw relationship or mandibular centricity, which is when the heads of the condyles are in their most comfortable retruded position from

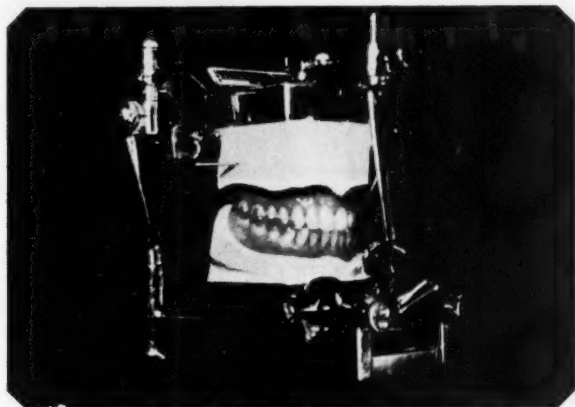


Fig. 5.—Cases are mounted on Articulator in Centric.

which lateral and protrusive movements can be made at a given vertical opening. The casts are then poured, being careful not to injure this centric relationship which has been taken against the soft wax on the upper teeth. The casts are now trimmed and mounted to this centric position by some split cast method. (Fig. 5.) When the wax has been removed from the teeth, often it will be found that they will not close into their original centric. This we do not worry about for it is one of the things that need correction and is usually overlooked. Next, the protrusive wax record (Fig. 6.) is placed between the teeth and the condyle adjustments of the instrument are set accordingly. The record of the condylar information should be marked on the side of the cast with indelible pencil. There will be an apparent malocclusion which is just as important to correct at this time as is the fit of the dentures. Usually the lower denture is first removed from its cast, and the impression material eliminated from both the denture and the cast. The remaining plastic is then cut away from the teeth, both on the labial and lingual, leaving only enough along the under surface to keep the entire arch of teeth tied together. They are then sticky-waxed to the upper teeth to correct centric position and the articulator is closed. The space between the

mandibular cast and the teeth is then filled in with wax and then waxed to proper contour, rechecking the accuracy of the occlusion in centric, lateral and protrusive. The upper denture is next lifted from its cast and all impres-

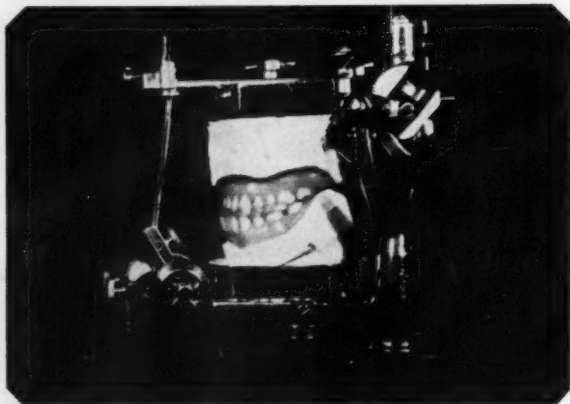


Fig. 6.—Articulator is adjusted with Protrusive Wax Bite.

sion material removed. The upper cast is then post-dammed (Fig. 7.) and a palatal seal is added by using a No. 8 bur. The acrylic is cut away from the labial, buccal and palatal surfaces of this denture leaving only that on the under surfaces of the teeth to keep the entire arch of teeth tied together.

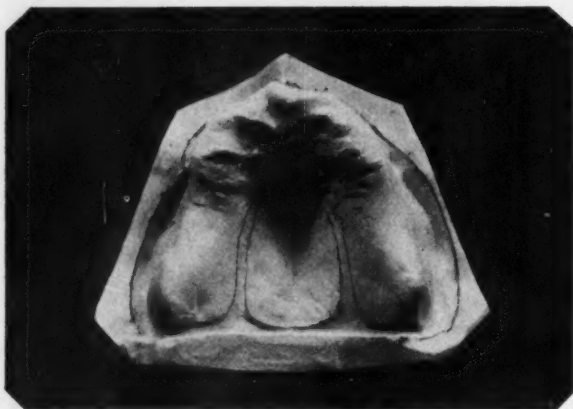


Fig. 7.—Post Dam and Palatal Seal is made with a Number Eight Round Bur.

They are then sticky-waxed into proper occlusion with the lower teeth (Fig. 8.) and the space between the teeth and the maxillary cast filled in with wax after the articulator is closed. If the rugae are to be reproduced this is done by burnishing a template of .004 tin foil into the rugae area, swaging it



by means of a stone counter die which is previously made by pouring stone into the palate of the cast. A few thicknesses of rubber dam are placed over the tin foil and the counter die pressed to position. This foil is then trimmed

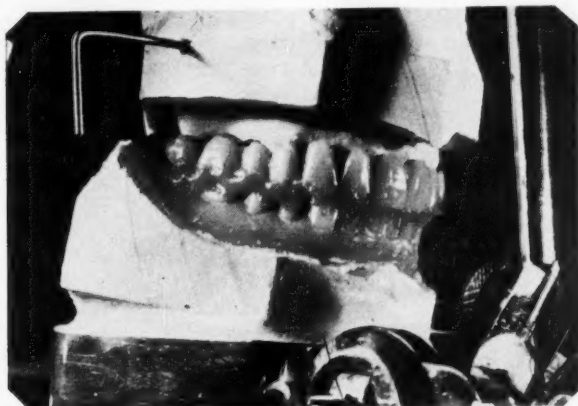


Fig. 8.—Teeth are waxed into Centric of opposing bite.

and, after an even thickness of Kerrs Boxing Wax (red) has been placed over the palate, the foil is pressed to place over this wax by means of the counter die. This gives a duplication of the patient's natural palatal contour. Attention should also be paid to contouring the plastic below the lingual of all the



Fig. 9.—Teeth flaked ready for packing.

teeth which eliminates an excessive amount of thickness here. It adds much to the patient's speaking ability.

After the cases (Fig. 9.) have been cured they are remounted on their split casts on the articulator (Fig. 10.) and the occlusion corrected and milled.

Dentures transferred in this manner will give the patient an efficient case with all new material and still retaining the aesthetics of the original denture and nothing lost in the process.

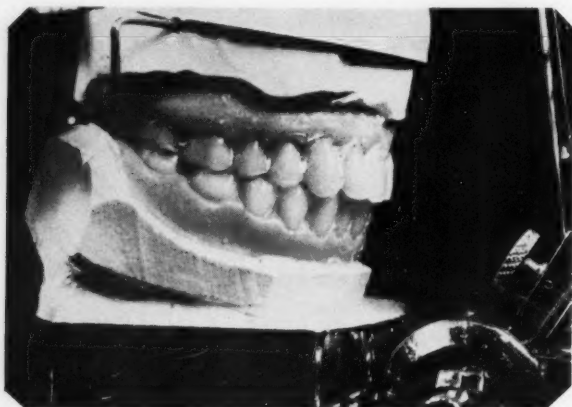


Fig. 10.—After cases are cured they are remounted, spot-ground and milled.

Relining is done in the same manner except that instead of removing all of the plastic from the buccal and labial surfaces we only cut out the palate of the upper and grind out a certain amount on the tissue surface of both dentures to allow for the thickness of the new material. The same procedure

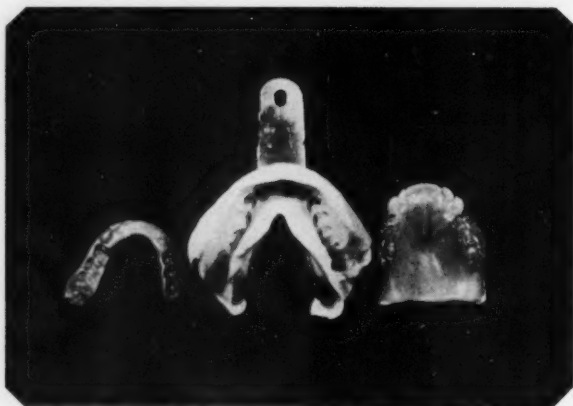


Fig. 11.—Protrusive, Centric, and Impression for a Metal Model.

is followed as far as maintaining or correcting the occlusion as was done in transferring. If only one denture is involved (Fig. 11.), a metal cast is made of the opposing occlusion. This is mounted on the articulator with the same records as previously described for transferring.

Before going into the subject of denture repairs, I would like to discuss the simple chemistry of acrylic resins and methods of their handling. Acrylic resins were first introduced to the dental profession in 1937, though acrylic acid had been known since 1843. Methyl methacrylate was used as bonding material for safety glass in America in 1931 and it was in 1937 that the DuPont Company first marketed sheets of lucite and made their first dental acrylic which was put out by Vernon Benshoff Co. A material called Kallodent was developed in Great Britain and was first used for dentures in 1933. It was described by A. Caress in an issue of the British Dental Journal in 1935. Kallodent was made available to the profession in 1937, the same year that a powder-liquid combination called Paladon had been patented in Germany.

The chemical formula for methyl methacrylate is  $\text{CH}_2=\text{C}(\text{CH}_3)\text{COOCH}_3$  and is one of several resins theoretically related to the unsaturated hydrocarbon ethylene. Methyl methacrylate, to date, has been the most popular of the resins for dental purposes. Others which have been used are the bakelite type or phenolformaldehyde group, the vinylite type, the polystyrol type and the aralkyl-halide type. We have acrylic monomer and polymer, styrene monomer with acrylic polymer, acrylic vinyl resins and many acrylic and vinyl blends. As you can see, if you make a study of the work that has been done on dental plastics, much has been accomplished in developing and selecting those which would be most applicable for denture bases. There have been really four forms in which methyl methacrylate could be secured: (1) The blanks which are made of polymerized resin and which are reformed by pressing with special electric presses. These have never been very popular. (2) The powdered polymer which was dry powder packed in a heated mould and pressed at a very high temperature. This is not on the market at the present time as a denture material. (3) The plastic gel which has some advantages and some disadvantages. This is simply a combination which has been mixed by the manufacturer and which does have a limited shelf life. (4) The powder and liquid which is the most popular form of all. The liquid is the monomer and the powder is the polymer. The powder is made up of minute spheres of monomer which have been polymerized and also mixed with pigments, opacifiers, plasticizers, catalysts, inhibitors and fillers. When the monomer is mixed with the polymer powder the small spherical particles become partially saturated, the monomer thickens and the mixture becomes a plastic mass which increases in consistency after it has been allowed to stand. Oxygen, heat and light all help to speed up the polymerization of methyl methacrylate.

I would like to give the following definitions: (1) Acrylic resins—Resinous materials which are made out of acrylic acid or any of its derivatives. (2) Monomer—A monomer is a single molecule which, when heated or otherwise treated, combines with other single molecules to form polymers. Monomer is the liquid used in denture acrylic and polymer is the powder. (3) Polymer—Polymer is polymerized monomer. In general, polymers are thought to be formed by the joining together by simple addition of numerous small monomers. The powder used in pure methacrylate denture resins is polymer. (4) Polymerization—Polymerization is the process of chemical change in the substance which produces a new compound whose molecular weight is the multiple of that of the original substance. To polymerize a sub-

stance, therefore, is to cause molecules of the same kind to unite to a new large molecule having the chemical elements present in the same proportions but resulting in a compound of higher molecular weight than the original substance and having different physical properties from it.

Most methyl methacrylates would eventually polymerize at room temperature but this is a very slow process. At the present time we do have rapid-curing resins which are used for quick repairs and relines. Heat is not required for these to polymerize and they probably do have a place in our denture materials. However, at the present time there are none that have proven suitable for relining purposes. They can be used for quick repairs for replacing teeth but should be used only for emergency repairs and not generally in place of the better type of acrylic resins. There are, however, some new self-curing plastics used for filling cavities which may have some merit, if properly used.

Those reline materials which are advertised for patients to place in their own dentures should by all means be avoided as they have been proven to be quite injurious to the mouth tissues in many cases and to cause warpage of the dentures. They do not form a perfect bond with the acrylic of the denture, and, therefore, should be discouraged except for emergencies. Skinner and Pomes definitely proved that warpage occurred by the application of these liner resins. They penetrate the inner surface of the denture, affect the consistency of the methyl methacrylate on the tissue side and cause the denture to warp.

There are many cheap acrylic resins on the market at the present time and most of these should be avoided as they are not made from pure materials and are apt to cause tissue irritation.

The dental profession has had considerable experience with materials like the cellulose, vinyl and phenolic type of products which were often difficult to mould and which usually required special flask presses or temperature control equipment to process them. As a result, the comparative simplicity of the methyl methacrylate processing technique has appealed strongly to the profession.

I will give you the two procedures which we are using in our own laboratory for the processing of our methacrylate denture resins. One is a quick method and one is a slow process, the preference being for the slow process where time will permit. Since time is a factor in many cases it is necessary to have a shorter method of processing and still one which is safe and will give good consistent results.

The shorter process which we use is as follows:—

1. Immerse flask in water at 160-165 degrees Fahrenheit constant temperature and hold 1½ hours.
2. Transfer to boiling water and boil 30 minutes. The flask is then bench-cooled for one hour and then cooled under the tap for 15 minutes before opening.

The other process, which is the one we usually use, is as follows:—

1. Immerse the flask in water at 160 to 165 degrees Fahrenheit constant temperature.
2. Hold for nine hours. We have a Westinghouse Electric Roaster to which we have attached a time clock. The clock is set for nine hours and by morning the cases are nearly cool enough to be placed in tap

water for 15 minutes and opened. We try to plan most of our cases so they can be cured overnight, then deflasked and polished in the morning.

Rapid processing by placing immediately in boiling water is dangerous, for it is apt to cause porosity, warpage and checked teeth and also give a softer final result. Immersing the flask in water at 160 to 165 degrees constant temperature and holding for nine hours reduces the chances for porosity and gives a very hard well-polymerized acrylic resin. Following any process used, the case should be cooled for at least one hour on the bench and then at least 15 minutes under tap water before the flask is opened. It is recommended with the powder and liquid that, where possible, after the case has been packed, it be allowed to set for one hour before the processing is started. As you know, there is a wide variance of technique and it is confusing to many to know which to select. The one thing that is important is that the flask not be heated too rapidly. Cooling of a denture flask should also be done very slowly. The critical range in curing plastics is that between 160 and 165 degrees Fahrenheit. The acrylic begins to polymerize at 158 degrees and from this point on begins to generate exothermic heat or the heat of polymerization. This heat is generated within the material itself and for this reason it is important as it reaches the critical stage that the flask is not heated above 170 degrees, for the lower it can be kept when the methacrylate resin strikes this flash point or kickover point, the less danger we have of porosity developing and the quality of the material seems to be much better. There are various ways of obtaining a constant temperature bath in which to do this curing. It may be done over an electric hot plate which has a control and, if on any certain setting it should reach too high a temperature, then the pot in which the case is processed may be placed on a grill, and lifted, in order to allow air to circulate beneath it. The temperature can also be controlled by the amount of water that is placed in the container. A gas flame may also be adjusted so that the water will hold a constant temperature between 160 and 165 if the gas pressure does not vary. An important piece of laboratory equipment is a good thermometer. A fixed amount of water should always be used and the lid should always be placed on the container to prevent evaporation. The less water there is in the container, the higher the temperature will rise with a fixed amount of heat. Another very good method of obtaining constant heat is the use of an electric light bulb of the proper size submerged in the water to give the required heat. The dental equipment which has been developed for this purpose has been very high in price and it is not necessary to use it to get good results.

There are two methods of moulding plastics. One is compression moulding and the other is injection moulding. The compression moulding is done by trial packing and this should be done with a good press (Fig. 12.) so that with slow pressure the flask can be completely closed, metal to metal. These cases should always be processed in some type of spring clamp so that when the kickover point is reached there is room for expansion which will prevent internal strain, breakage of teeth and warpage of the finished case. Injection moulding is another very good process; in fact, it is to be preferred with the exception that it does take more time. If an injector flask is used (Fig. 13.), a water jacket should be used around the plunger to prevent the acrylic in the sprue from curing in advance of the acrylic in the centre of the flask.

Following polymerization of acrylic resins there is a shrinkage. However, this is fairly well compensated for by the fact that polymerized methyl methacrylate, when placed in water, will absorb enough moisture to cause it

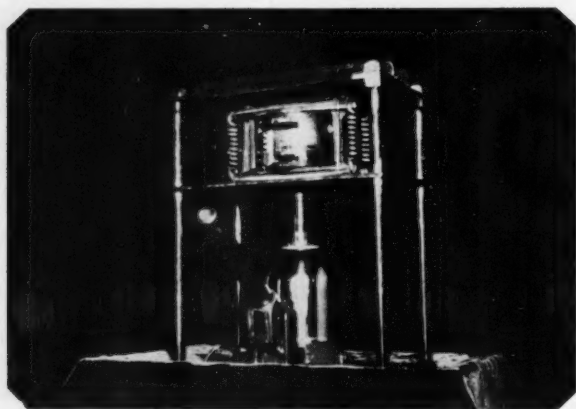


Fig. 12.—Showing Flask with Spring Clamp and Hydraulic Press made with a one-ton jack.

to expand and nearly compensate for the shrinkage of polymerization. This is why dentures which are allowed to dry out will warp and the fit will be affected. It takes two to three days for a denture which is dry to come back

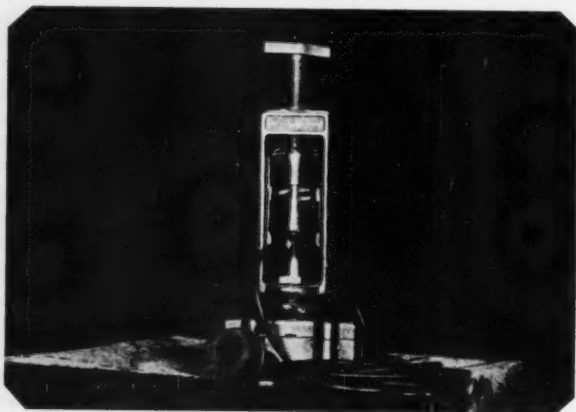


Fig. 13.—Injector Flask with Water Jacket Plunger.

to its original form after being placed in water. When dentures are out of the mouth they should always be kept in water. When dentures are completed they should be placed in water until they are delivered.



Acrylic repairs, relines and rebases should be done, when possible, with the identical material from which the denture is made. Quick repair materials should only be used in emergencies. It is important that all repairs be made at a low temperature, for it has been shown that polymerized methacrylate resin will expand at 180 degrees Fahrenheit and that the material will expand in proportion to the temperature applied. It is therefore dangerous to place it in boiling water as it is apt to produce strains and warpage due to this expansion. It is therefore recommended that all repairs be made at a temperature from 160 to 165 degrees for 2½ hours or more. While the repair acrylic will form a bond with the polymerized methacrylate resin of the denture, it is best to use mechanical retention as well. Where there has been a complete fracture, after the cast has been poured, the fracture should be opened up all the way through. The surface on either side of the channel should be rabbited about half the depth of the material. Before packing, some of the monomer liquid should be put on this surface several times so that it softens the acrylic and forms a bond with the new material. Before a case is repaired the cause of the breakage should be determined. It may be due to the absorption of the ridges and a fulcrum being developed through the centre of the denture, or it may be due to porosity of the material or to thinness of the material causing a point to fracture. This should be determined first for, if it has been caused by the absorption of the ridges, an impression for relining or rebasing should be taken in order to prevent its re-occurrence. In either relining or rebasing an upper denture the safest procedure is always to cut out the palate and replace it with new material. This will give an even thickness of material and added strength will prevent future trouble. Our motto should be, not how quickly can we do our work, but how well can we do our work; not how quickly will it be finished, but how long will it last. Our reputation is at stake with every piece of work that goes out of our office from the smallest repair to the most complicated reconstruction and, while there is little money in repairs, they should not be taken lightly and never done inefficiently.

## IMMEDIATE RESTORATIONS FOR COMPLETE DENTURES\*

WILFRID HALL TERRELL, D.D.S., F.A.C.D., PASADENA.

The subject of immediate restorations is not a new one but it is one which commands much interest and is a phase of prosthetic dentistry which has great possibilities. There are still men who feel that the teeth should be extracted and the mouth allowed to heal before dentures are ever constructed. With these I do not agree, for I am convinced that the finest denture service that can be rendered is to take impressions before any of the anterior teeth are lost and have the new dentures completed before the teeth are extracted. Many of our most satisfactory cases have been constructed as immediate restorations. This service need not be out of the reach of the average denture patient. There may be some of you who do not believe in immediate restorations. However, you are overlooking one of the greatest practice builders you ever had a chance to use in your office. When you can construct a set of dentures that look so natural that the patient's friends and relatives are not aware that they have had their teeth out, you may be very sure that that patient is going to be enthusiastic about you and your work. Those of you who are doing this need no encouragement, I know, for once you have a technique that gets results you are bound to realize its value. I am aware that I am talking to three groups of dentists, those who never make immediate restorations, those who occasionally do so and those who always make immediate restorations, if the patients present themselves with the anterior teeth still in place. I do not need to convince this last group of its value. However, there may be a few points which I will show that might be added to your present technique to an advantage. I want to impress the first and second groups of the value of this service and show that it is not a difficult procedure.

Most prosthodontists and oral surgeons realize the importance of pre-extraction records. When patients' teeth have been ordered out, many of them go to the oral surgeon first and later decide who will make their dentures. This is going at it backwards. If a patient is referred to the oral surgeon by another dentist, it rather puts him on the spot, but he might suggest to the patient that he inquire of his dentist whether he has taken an impression of his teeth so that new ones can be made like his own. If this is done at the patient's request, it is better than for the oral surgeon to suggest to the other dentist what he should do. Dentists should be educated to the importance of pre-extraction records and the public should be taught to realize that immediate denture service is beyond the experimental stage. It is a proven success and is the ideal method for construction of patients' first dentures. It has every advantage and no disadvantages. Of course, in the beginning immediate dentures serve only an aesthetic function and should be used but little for chewing but neither can the gums be used for chewing and they serve no aesthetic function. It is a sad situation when the teeth are extracted and all records are lost and it is left to the prosthodontist to guess just what the patient's teeth looked like before they were removed. We may be able to construct dentures that look fairly well but never are we able to guess the exact size, shade, shape and arrangement of the patient's own teeth. The prosthodontist should be selected before the exodontia is done and oral surgeons can be of great service to their patients if they will explain this to them. However,

\*Read at the Twelfth Australian Dental Congress.

if the patient does not have a dentist in mind for this service, the oral surgeon can refer this patient ethically to some man whom he knows through experience will give that patient a good denture service. Advisedly, I say denture service rather than a good set of teeth, for denture service is what the patients are paying for. A good set of teeth, if not followed up by the proper service, will be of little or no value a year or two from the time they are constructed, for the mouth will undergo changes which will need correction. That is why denture patients often drift from one dentist to another. The first dentist constructs the dentures, collects the fee and says good-bye without explaining that his services will be needed later. Misunderstanding develops as a result of lack of explanation and many men who could have a good prosthetic practice lose it because they are too anxious to collect that first fee and do not wish to be bothered with the follow-up service which is so important and which keeps their patients tied to their offices. There should be a close co-operation between the prosthodontist and the oral surgeon. I do not do any oral surgery for our office, but refer it all to a specialist. I always accompany my immediate denture patients to the exodontist's office and place the dentures in the patients' mouths while they are under the anaesthetic. Except in cases where it is contra-indicated, I prefer to have the patient take a general anaesthetic, preferably sodium pentothol when the anterior teeth are removed. This, of course, could not be done in your own office unless an anaesthetist were employed. I realize that the average practitioner, except in the larger centres, must necessarily do all types of dentistry. He must be the oral surgeon, the periodontist, the orthodontist, the prosthodontist, the crown and bridge specialist and the operative dentist all in one. The large majority of dentists throughout the entire world fall into this class and it places a big responsibility upon them to keep up in every phase of dentistry. The business of earning a living keeps a man so busy it is difficult to take time out to learn new techniques. However, it is to you I want to direct this paper in particular and much credit is due you in the splendid way in which you carry out such a diversified practice. To you goes the same honour as to the country doctor who delivers babies, sets broken bones, performs major operations and takes care of the health of the entire family for more than a generation.

The technique which we use is not a difficult one and it is one which you can all use in your own practices without difficulty and I know you will get good results. There are many complicated techniques for immediate restorations which you would not follow. I believe in making everything as easy as possible if you can get good results. Many men make so-called temporary dentures followed later on by their so-called permanent dentures. This we do not do. We make no temporary dentures whatsoever.

If a patient can afford more than one set, we construct duplicate dentures either at the time the original case is made or at the time of the rebasing of the immediate dentures, which is done six weeks after their insertion. (Fig. 1.) The duplicate denture is identical to the immediate restoration but unless the patient needs and can afford duplicate dentures it is necessary to construct but one set of dentures. No dentures are permanent regardless of how long they wait to have them made. As long as patients wear dentures these will need refitting because the mouth changes as the patient gets older. These changes are beyond our control but they can be corrected by relining or

transferring and it does not necessitate the construction of new dentures unless the patient so desires.

At the first appointment with the immediate denture patient, a complete set of radiographs should be taken and impressions for good study models



Fig. 1.—Duplicate Upper Dentures.

made. These impressions are usually taken with one of the alginates. At this first appointment do not quote the patient a fee, but discuss the problems involved in the case. Give him another appointment and tell him that at this appointment you will have a report on the Xrays and study models and that it



Fig. 2.—Pre-extraction records.

will be possible at that time to outline the case and quote a definite fee for the work. I seldom quote a fee at the first appointment.

The procedure and technique that I am going to give you now is not given with the idea that it is the only technique, or the best, but it is simply the one

that I use in my own practice and has proven to be the most satisfactory in my hands. I hope there will be some parts of it that will be of value to you if it is not used in its entirety. In most of our particular cases we make colour photographs of the patient before and after and these have proven to be valuable records. (Fig. 2.) Our pre-extraction records consist of Xrays, study models, and coloured photographs of the patient. Profile, face mask and measurements with a bite gauge may also be added if more complete records are desired. We use either alginate or hydrocolloid for the impressions. It is not necessary to use a complicated impression technique at this time as rebasing will be necessary later. Then very accurate impressions are taken for completion of the case. At first I used nothing but hydrocolloid and did not trust the alginates except for study models. However, the alginates have proven themselves to be accurate and will get good impressions for this purpose. I have been unable to see any practical difference in the end result by using either of these materials. In fact, at the present time we use alginate in preference to hydrocolloid for immediate restoration impressions. If care is used in watching the consistency of the alginate it can be placed in the mouth at a time when it has body enough to force it up into the buccal and labial folds and get a good impression of these areas. We never make immediate restorations of all the teeth nor do we advocate the extraction of all the teeth at once. Too many extractions at one time is dangerous to the patient's health and the restoration would be too painful to wear. The posterior teeth should be removed at least a month before the impressions are taken or at least until the soreness has left the gums and they are healed. Only the anterior teeth are extracted at the time of the insertion of the immediate restoration. By doing it this way patients are able to wear the new dentures with very little discomfort, though they should not expect to exert pressure on them until the soreness has left the ridges, new bone has formed in the sockets, and the tissues have built up a resistance to pressure. This usually takes at least six weeks, but in the meantime the dentures are worn for appearance, which is certainly more to be desired than going edentulous and often they will make considerable use of them depending upon how long the posterior teeth have been out. It takes a year to build a good ridge.

I always explain to my patients that there is no charge for the first rebase, which is done at six weeks or as long after that time as they wish it. The longer they wait for it the longer it will last before they will need another. I impress upon them that the first one is free, but that as long as they wear dentures they will need this service and tell them what the charge will be when it is necessary to have it done. Patients are apt to try to shift the responsibility for this upon us and expect us to service their dentures the rest of their lives for nothing. We should not sell dentures but denture service, for without they are not going to be satisfactory forever. If they do not understand this, in their opinion, we will be at fault and our dentures will be unsatisfactory. Let them understand that their mouth will be continually changing as long as they wear dentures.

As the impression is pressed to place, the cheeks should be lifted out to prevent trapping of air around the periphery and then pressed down so that the borders of the impression will not be too thick. An alginate impression should always be placed in potassium sulphate solution from 10 to 20 minutes before the casts are poured. If this is done, the surface of the casts will not



be softened by the alginate. If hydrocolloid is used, it should be poured immediately after the impression is taken. If it is not poured immediately it should be placed in a closed jar in which there is cotton that is saturated with water. This prevents the moisture content in the hydrocolloid from evaporating and the hydrocolloid does not take up additional moisture as it would in a water bath or solution.



Fig. 3.—Upper Denture taken immediately after extractions.

The selection of teeth is very important in immediate denture work and it is well to study this at this first working appointment. At the present time there are two types of teeth available, porcelain and plastic, and they both have their advantages. Since in our immediate dentures we were going to reproduce exactly, with minor corrections, the tooth form, colour, shape and arrangement of the patient's teeth, it is necessary that we be able to make an accurate substitute if the result is to be what we anticipate. We use both porcelain and plastic teeth for this work, for many times the proper mold or shade is only available in one or the other. The tooth form will often have to be modified whether we are using porcelain or plastic, and it is rarely ever possible to select a set of six anteriors and be able to use them as an entire set. Frequently it is necessary to select centrals from one, laterals from another and cuspids from another set, and then modify the form of each of these. This takes us back to our tooth-carving days in dental college and to get the best results we must refer again to that same technique. The use of a millimetre gauge is very important and the tooth should be duplicated in all dimensions: width at the incisal, width at the gingival, length from the gingival to the incisal, mesial and distal contour, and labial contour. We are actually giving that patient hand-carved teeth in duplication of their own. Many teeth will require characterizing or staining and this should be done before a super glaze is added and the tooth is fired in the porcelain furnace. (Fig. 3.) Some of the newer porcelains may be shaped and polished and glazing is not necessary. If baking is to be done we usually prefer to use a tooth without pins and if gold-pin teeth are used the temperature of the



porcelain oven must be kept very low or the pins will become loosened and cause failure in the denture later. (Fig. 4.) Platinum-pin teeth are ideal for this purpose but they are difficult to secure and usually have to be obtained on special order from the factory. While porcelain is more permanent material than present-day plastics, it has the disadvantage of being quite brittle, is easily broken and, when special teeth are made, of course, more difficult to replace. It is for this reason that the new plastic teeth have become so popular for use with immediate restorations. Before advocating their use I want to give a word of caution with regard to them. If you have used them

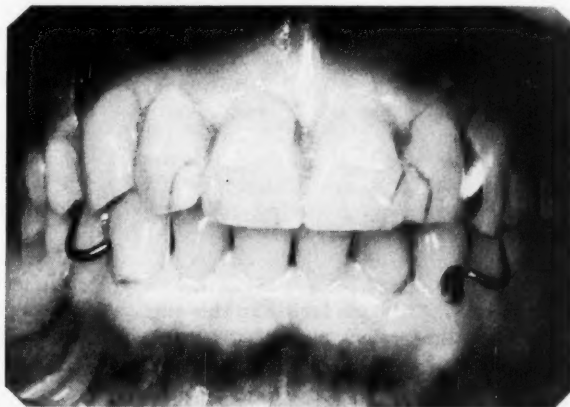


Fig. 4.—Same Immediate Upper Denture taken six weeks after extractions.

at all you have probably seen some cases return with the surface of the anteriors all crazed or checked. This is easier seen by transillumination but it becomes very apparent when the dentures are dry. Fortunately this occurred much more frequently in the first plastic teeth that were available and some of the newer ones seem to be of a much better type of plastic. There are two things to be watched in prevention of this: (1) In setting up the teeth and waxing the case it is important that the surface of the teeth never be flamed. It is dangerous to use the flame on the wax around the necks of the teeth for this will cause the teeth to craze. Instead of flaming, it is better to carve the wax and polish it. (2) The solutions which are contra-indicated and should never be used around plastic teeth are chloroform, acetone, carbon tetrachloride, and alcohol. These solutions should never be used on the wax or in the flask in connection with plastic teeth. I do not know whether the percentage of alcohol in drinks will affect them, but a straight shot might. When the flask has been separated and the wax removed, they should then be thoroughly cleaned with hot water by pouring a small stream of water into the flask but never placing the flask in boiling water. The remainder of the wax is then removed with a solution of kerosene and ether, equal parts. This will not affect the teeth and will not cause them to craze where the use of either chloroform or carbon tetrachloride definitely will. The manufacturers claim that the newer teeth, if handled with these precautions, will give very

satisfactory results and the detrimental effects which have occurred in the past will not happen. There certainly are many advantages in the use of these teeth, particularly in the anteriors. It is easy to carve and shape with stones each individual tooth to its proper dimension and contour. A beautiful job of recarving and polishing can be done in a very short time and it makes a great difference in the appearance of the immediate restoration case. Plastic stains are also available, so that characterizing can be done on these teeth just as well as on porcelain teeth. I have been very slow in accepting plastic teeth and have used very few of them in the posteriors. However, in short bite cases they are most valuable. They do have an advantage in that there is very little noise when the teeth contact and it does eliminate the clicking sound which is often heard with porcelain teeth. They are becoming more and more popular with the profession in the United States, and I heard one of the leading dentists at the meeting of the Academy of Denture Prosthetics in Indianapolis last spring say that he has been using plastic teeth 100 per cent. in his practice. Personally, I prefer to be conservative and use them only on selected cases where they can be kept under observation. I am certainly glad that they are available for our use though I doubt they will ever entirely replace porcelain. In the majority of our cases we still prefer porcelain teeth throughout.

The shaping of the anterior teeth should be a chair operation. I usually do the centrals, laterals and cuspids at the chair, comparing the teeth with the natural ones, rather than the stone teeth. In this way they are easier to duplicate and it also gives the patient an opportunity to observe the painstaking detail that is required in order to reproduce for them their own natural tooth effects. Exact duplication is not always desirable and improvement can often be made, but these decisions can best be made when the patient is present.

At the second appointment we usually take the vertical opening and approximate centric. Base plate material is adapted to the cast and accurately fitted by the use of tinfoil and zinc oxide paste. To these base plates are added wax rims. Centric closure is obtained without compression of the ridges. You will find that in taking the bite for an immediate restoration when all the posteriors are missing, if the patient exerts pressure upon the bite rims, when you mount the casts, the anterior teeth will be held apart. It is important to have the wax very soft and this can best be done by keying the upper wax rim and pooling the wax on the lower rim with a wax pooling instrument. Have the patient close until the teeth contact. If a vertical stop has been maintained the wax should be soft enough so that no pressure is exerted on the ridges when the teeth touch. This operation should be repeated until this is the case. The casts are now mounted on the articulator and check-bite plates are mounted on the bases with white compound after the wax has been removed.

At the next appointment the plaster check-bites are taken. (Fig. 5.) Denture powder is placed in the bases to stabilize them while this is done and, after a gothic arch tracing has been completed, centric, protrusive and right and left check-bites are taken in plaster. If the articulator is not fully adjustable, then only centric and protrusive should be taken and, if the instrument to be used is non-adjustable, then only centric is taken. It is very important that correct centric be secured and the eccentric positions are of value only if an adjustable instrument is used. Centric is the apex of the gothic arch which represents that most comfortable retruded position of the heads of the

condyles from which lateral and protrusive movements can be made at a given vertical opening. If there is an interference with the teeth in making the gothic arch, the centre-bearing screw will have to be raised to clear these teeth.

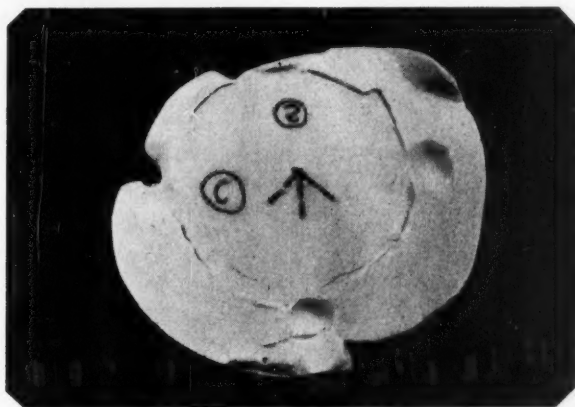


Fig. 5.—Plaster Check-bites are used for setting the Articulator.

The casts are mounted on the articulator by some split cast method, (Fig. 6.) as we did with our precision dentures, and after the cases are cured they are again remounted on the articulator and selective spot grinding done



Fig. 6.—Metal Split-cast Plates designed by the author are used for remounting casts on the Articulator.

and milled before they are removed from the casts and polished ready for the patient.

The following is the procedure used in setting up the anterior teeth. (Fig. 7.) We take a carborundum disc and make a slice through the stone tooth

that is to be removed, being careful not to touch the contact with the adjoining tooth. This is done also on the opposite side of this tooth and then a cut is made through the centre of the tooth. (Fig. 8.) With an instrument, these two pieces are fractured out and we then take a round vulcanite bur about the



Fig. 7.—Cast for Immediate Upper mounted against Complete Lower.

diameter of the tooth root and prepare a shallow socket visualizing the position of that patient's tooth socket. This will give us room to set the neck of the tooth in direct relation to the free margin of the gum on the cast. The



Fig. 8.—Duplicating the shapes and positions of the natural teeth.

projections of acrylic on the inside of the dentures which result from these sockets in the cast will be ground out after the dentures have been processed and the inner surface will be smooth. With our immediate restorations we do

not follow the common procedure of putting on a labial flange immediately. We originally followed Dr. Houses' technique of setting the teeth in the sockets with the natural gum surrounding them. This gives a most natural

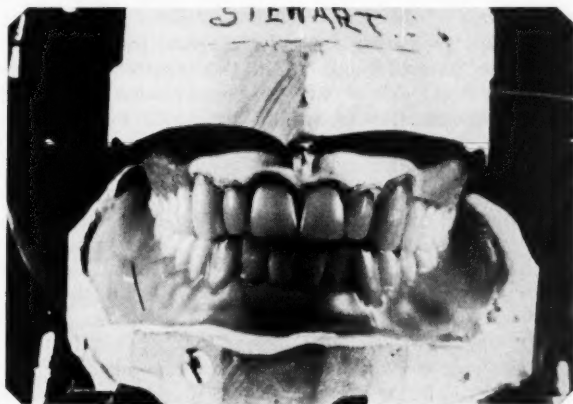


Fig. 9.—Showing all teeth in position.

effect to start with if none of the labial plate is lost. We do not remove any of the labial plate, as we wish to preserve as much of the ridge as possible. Within six weeks there will be shrinkage sufficient to allow for a labial flange and the labial plate which is so valuable will not have been lost. (Fig. 9.) It is

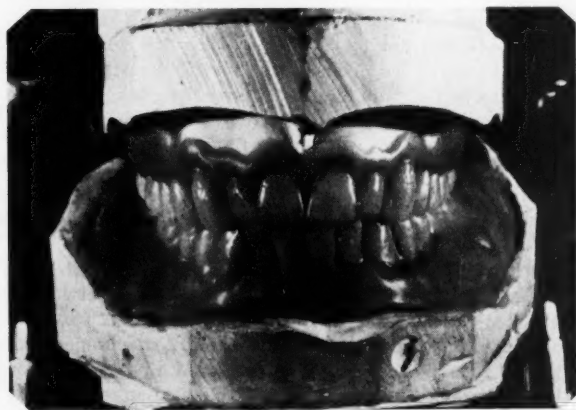


Fig. 10.—Complete case waxed and ready for flasking.

surprising how many edentulous ridges fail to develop a cortical layer of bone over the ridges. This is why many patients are unable to exert much pressure on their dentures without discomfort while others are uninhibited. We do not



trim the labial surface of the cast but slightly, however, this will be explained later. We have a method of duplicating the patient's own natural gum contour and we do not wish to distort the lips by placing any labial flange at the time of the immediate insertion. (Fig. 10.) When the teeth are all set up we have not disturbed that part of the model which duplicates the gingival tissue but the artificial teeth are projecting from the gingival tissue of the cast in the same relation as the natural teeth do in the mouth. I think this is very important because it requires not only the reproduction of the teeth, but the reproduction of those soft tissues around the teeth to make an immediate restoration look natural. The immediate restoration when finished and placed in the mouth does not have a labial flange extending up to the reflection. It does have the intercepital tissue and that tissue immediately above the necks of the teeth reproduced in plastic and thinning out to a knife edge about half way up the labial surface. In this way the patient looks natural the very first day. As no tissue has been lost higher up, the placing of plastic material in this flange area would distort the upper lip and spoil the aesthetics of the case.

Within a period of six weeks we find there has been shrinkage enough to allow for the thickness of our labial flange and, in fact, in most cases it is required in order to prevent the upper lip from sinking in. I can remember only one case that I have made this way where there was no shrinkage across the labial from cuspid to cuspid and that patient today is still wearing a denture with no labial flange. However, if we do not place our narrow, thin flange above the teeth, a few weeks following surgery, spaces will begin to develop and the gum tissue will resorb, exposing the necks of the artificial teeth, and the gingival region becomes quite unsightly. For this reason we modified our technique, replacing the intercepital tissue and a margin of the gum tissue. Before flasking, a very thin layer of wax is flowed over the labial surface of the cast and is carved down until it is only paper thin. It should extend from five to ten millimetres above the neck of each tooth. The space for this flange is obtained not by adding wax on the surface of the cast but by trimming the cast above the necks of the teeth when the case is in the flask. The front being left open in this manner allows the sockets to have free drainage and if there should be any swelling it will not be confined. This is a compromise between no flange and a complete flange and has many of the advantages of both and eliminates the disadvantages of both. I have had school-teachers and businessmen have their teeth out on Friday and go back to work on Monday with no interruption in their work and no one detecting anything had been done. The gums are going to shrink as we know, and it must be explained to the patient that though the dentures seem quite firm when they start wearing them, they will gradually become looser between now and the six weeks period at which time they will be refitted. The fee quoted the patient for this service includes the placement of the immediate restoration, the treatment visits during the six weeks period and the first refitting and transfer of the dentures. We know there will be changes beyond this period and for as long as the patient wears dentures, but our original fee only includes the one free refitting and from then on when the dentures need this service it is the patient's responsibility. It should be carefully explained to the patient so that we are not blamed for changes beyond our control. During this six weeks period, if the dentures loosen, we have the patient use one of the adhesive powders to keep them in place until the new base and front are



placed on the dentures. They can be assured that after this is done there will be no more need for the powder.

The same post-damming technique is used in immediate restorations as was given in the complete denture technique, that being done entirely on the casts by the means of a No. 8 round bur. A well-balanced case can be done just as well for an immediate restoration as for a healed case and there is no reason for making a temporary case which does not embody all the precision which we require in our best denture technique. Why build an inferior case to start that patient off? It is better to give them everything possible in the

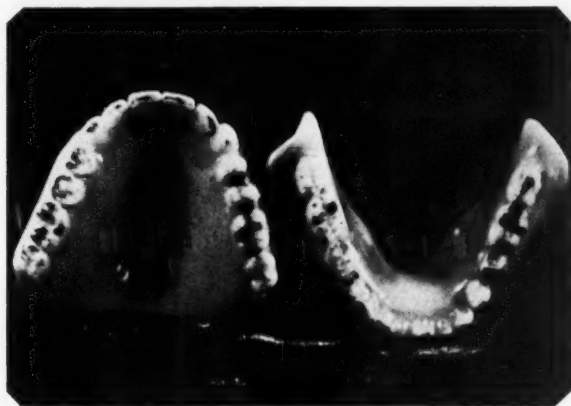


Fig. 11.—Balanced occlusion is imperative.

beginning and then, by transferring, this can be preserved and this same denture continue to serve them indefinitely. The patients should be educated to the fact that their mouths are continually changing and that everyone wearing dentures will reach that period when those dentures should be refitted or transferred.

It is important that all denture cases be checked carefully with articulating paper and all lateral stresses removed. Remember that there should be even contact in centric and that there should be at least three-point contact in all positions. (Fig. 11.) In adjusting the occlusion the rule to follow is: grind the buccal cusps of the uppers and the lingual cusps of the lowers. If there is interference on the balancing side this should be taken care of either on the upper or the lower as indicated. The length of time that dentures will remain firm is largely determined by the freedom with which those dentures glide without interference when no food is present in the mouth and a balanced occlusion is more important for this reason than for efficiency in chewing the food, but permanence of the fit and comfort for the patient are factors which should be built into every denture and this is done by balancing those dentures either on an articulator or carefully correcting the occlusion in the mouth.

The method of relining, rebasing or transferring can be done with such accuracy that nothing is lost and the position of the teeth and the appearance will be retained and in addition the dentures will fit like new. Those patients

who are wearing dentures that are not detectable are principally patients who have had immediate restorations. There is no reason why function in an immediate restoration should not be equivalent to that built into any other denture and certainly the aesthetics are far superior. Dentistry has been



Fig. 12.—Patient with natural teeth (before).

blamed by the public for its poor reproduction of natural teeth. All patients dread the day when they are to lose their teeth, principally because of the fear of looking like so many who are wearing dentures that are so obviously artificial. We are judged more by aesthetics of our work than we are by its



Fig. 13.—Patient with Immediate Restoration (after).

function, though neither should be sacrificed. Each set of dentures which we construct should be an exhibit to our patients and to the world of our skill and ability to reproduce the best in nature. (Figs. 12 and 13.)

## THE NEW ZEALAND EXPERIMENT IN DENTAL SERVICES\*

ROBERT HARRIS, M.D.S.

This lecture attempts to give, in a short period, the impression gained during a visit to New Zealand sponsored by the Federal Government in order to provide members of the dental profession with first-hand information on the operation, organisation and distribution of dental services in New Zealand. It was made possible, firstly, by the goodwill of the Minister for Health and Social Services, Senator McKenna; secondly, by the hospitality and co-operation of the New Zealand Government, Department of Health and the Division of Dental Hygiene through the Director, Mr. J. Llewellyn Saunders.

It is fitting to record that the Australian High Commissioner in New Zealand through his good offices made possible a satisfactory and a completely adequate series of arrangements whereby the visitors had no difficulty in landing in Auckland or in travelling or in any arrangements necessary to the tour.

The detailed organisation of the tours was in the capable hands of the Director who, together with his staff, spared no effort in making all information and details of the service available and also ensured, by attention to the smallest detail, that the visit was a complete success.

In order that the reader may comprehend fully the stage of development of the service, it is necessary to consider the following plan.

1. The historical background of the service.
2. The problems associated with its introduction and its development.
  - (a) In regard to personnel.
    - i. graduates,
    - ii. non-graduates.
  - (b) Defects.
3. The sociological background to the New Zealand Dental Service:
  - (a) The community outlook.
  - (b) Educational control which is closely related to (a).
  - (c) The political organisation.
  - (d) Existing social services schemes, and
  - (e) The general organisation of the Department of Health.
4. The organisation of the Dental Services:
  - (a) The dental nurses scheme (age group 5-13) plus pre-school children where possible.
  - (b) Adolescent scheme—13-19 (fee for service); 13-16 in practice.
  - (c) The adult Services.
5. The Wellington Training Clinic.
  - (a) The Tinakori Road Annexe.
  - (b) The Glenn Road Nurses Hostel, and
  - (c) Field Clinics.
    - i. Stratford,
    - ii. New Plymouth (public school and Fitzroy Street),
    - iii. Mahoenui,
    - iv. Poi Poi,
    - v. Otorohanga,

\*From a lecture to the Australian Dental Association, New South Wales Branch, at Sydney, September 27, 1949.

- vi. Te Awamutu (2),
- vii. Putaruru,
- viii. Rotorua (1. public school; 2. Whaka).
- 6. Profession's reaction.
  - (a) Official,
  - (b) Private,
    - Wellington,
    - New Plymouth,
    - Putaruru,
    - Rotorua,
    - Auckland.

## 1. HISTORICAL BACKGROUND.

It is reported that in 1905 strong representations were made by the dental profession for the establishment of some form of public dental services. However, nothing was done until in 1919 when, with a staff of six registered dentists, a service was attempted and failed (1) because of its inadequacy in numbers, and (2) because of the extensive field in which services were attempted.

In 1919, Mr. Thomas Hunter, now Sir Thomas Hunter, at the request of the New Zealand Government investigated the problems associated in the establishment of a dental service and reported his findings together with a recommendation. This was done in 1920 and he recommended that a service be developed using girls trained for a short but intensive two year course in operative dentistry. This proposal met with strong opposition from the New Zealand dental profession of the day led particularly by Professor Pickering. But after a study of the proposals a plan was inaugurated with the establishment by the Government of the New Zealand School Dental Nurses Service in 1921 and the first field work was commenced in 1923.

The service has grown until at present it employs 40 graduate dentists, 19 dental nurse inspectors and tutor sisters, 473 school dental nurses and 202 student nurses. In addition there are sundry personnel associated with the nurses hostel and chairside attendants totalling 25, so that the service has a strength of 759. It should be noted that this figure excludes administrative staff in the departmental office. The basis of service is one dental nurse to 500 school children, and wherever possible the treatment is given in a clinic established in the school grounds. There are, however, travelling clinics for remote and sparsely-populated areas.

In February, 1947, the dental benefits system was inaugurated under the Social Security Act to provide ultimately dental treatment up to the age of 19 years, but it is at present limited to sixteen years, and this has to be done largely with the aid of the private practitioner. At March, 1948, 483 registered dentists out of 675 were participating in the scheme.

## 2. THE PROBLEMS.

The problems met by Sir Thomas Hunter in 1921 are essentially the problems of today except that in former times they were somewhat exaggerated by a smaller number of graduates being produced annually than today. The main problem can be clearly stated—to provide a satisfactory dental service for children in the age groups up to 13 years of age required the concentration of technical

resources in a limited field of endeavour and the New Zealand experience has clearly shown that it is impossible to utilise fully-trained graduates for such a service, under the conditions found in New Zealand. The average length of service of the school dental nurse is 7.88 years. Where the service passes three years this average rises to 10.0 years. However, at the present time the Government is finding difficulty in providing personnel from graduates for its adolescent service. Even when these graduates have been produced with the help of Government scholarships, it is reported on all sides that the scholar arranges with a private practitioner to buy his way out of the Government Service immediately on graduation. The end result is that out of a population of 350,000 (approx.) school children to the age group mentioned, some 100,000 cannot receive dental treatment because there is not sufficient staff (graduate staff, or dental nurse staff) to carry out the treatment. The lack of recruits for the dental nurse service is due to three factors: competition on the labour market from other more remunerative positions, educational barriers and the low birth-rate fifteen to twenty years ago.

### 3. SOCIAL BACKGROUND.

In studying the dental service in New Zealand it is necessary to have in mind the stage of development in the social outlook of the community. It must be remembered that a free medical service has been in operation for some time, that a Socialist government is in power, having the same number of seats as the Opposition, with four Maori seats supporting the Government, and hence holding the balance of power and as the Maori vote really controls the Government's period of office the Maori population will naturally receive careful consideration in the preparation of all forms of social services.

Apart from that, it is clear that the community takes a far greater interest in the control of matters such as education, child welfare and medical and dental services than is apparent in Australia. This will be noticed particularly when one studies the school service in operation. There are education boards controlling the various districts and these boards actually handle the disbursement of the Government funds regarding education in their particular community. Consequently, in certain areas in which an aggressive or progressive spirit is dominant the schools show a superior development as far as technical facilities, playgrounds, buildings, etc., are concerned. It is the task of these education boards to build and service the school dental clinic.

This spirit is further exemplified in the school dental clinic since this is administered by a local committee consisting of parents, teachers, and a local dentist and, although they do not actually pay the salaries of the School Dental Nurse, certain basic costs such as electric light, gas and water services and cleaning charges have to be met and these are disbursed by the local committee. Also, a task of this committee is to provide accommodation for the school dental nurse; the rule is that if accommodation is not provided, no dental service is organised. The nurse must pay the costs of accommodation provided. In addition, of course, the dental committee can, if it so wishes and with the funds at its disposal, provide amenities for the staff and the patients, such as furnishings, room-heating equipment, and substitution of electrical engines for foot engines, and so on.



The Department of Health should be considered at this stage in relation to the social background because the Division of Dental Hygiene is directly integrated within the Department. It is organised as follows:—

The Minister for Health is the controlling person with a Director-General of Health responsible to him alone and, serving the Director-General, two subordinate officers, a Deputy Director of Medical Services and a Deputy Director of Administrative Services. Stemming from the Deputy Director of Medical Services are nine divisions, each controlled by a Director, one of these divisions being the Division of Dental Hygiene. Since there is a Deputy Director of Administration, each division has an executive officer on the level of the Director whose task is to control administration. It is important to note this arrangement for, although in practice the Administrative Officer or Executive Officer in the Dental Division enjoys a happy relationship with the Dental Officer, the administrative channel is parallel with the dental and directly stems from its senior, the Deputy Director of Administration.

The Director has complete control of the division and implements the policy of the Government.

The Director of the Dental Division has complete control of his entire service, although under the control of the Director-General of Health. However, the Director has direct access to the Minister so long as the Director-General of Health is informed. In practice it would seem that the division is, practically speaking, autonomous and there is no provision for the Director to consult any advisory group although it is perfectly clear that the Executive of the New Zealand Dental Association and the Director are on amicable terms.

The Dominion of New Zealand is divided as far as the Dental Service is concerned, into seven districts, each district under the control of a Principal Dental Officer, and one of these districts includes Wellington where the training facilities are established. The main function of the Principal Dental Officer is to control the field clinics, dental clinic committees and any private dental practitioners operating under the Social Service Benefits provisions. In addition to the Principal Dental Officers controlling the various districts, there operate, under the Director, a Deputy Director who controls the School Dental Service, personnel and equipment, a Principal Dental Officer in charge of orthodontic services, a Principal Dental Officer controlling dental health education and public relations, an Assistant Director who is responsible for training and is Principal of the Training College, a Dental Research Officer, whose activities are financed by the Medical Research Council, and, on the administrative side, a Senior Executive Officer.

The social service schemes of the government spread not only into the field of medicine and dentistry but also to housing and extensive settlements are in progress of development, particularly in the North Island at Mount Eden, Auckland, and in the Hutt Valley near Wellington. In the latter case, large tracts of farming land have been resumed by the Government and developed into housing projects.

An interesting comparison can be made between the housing scheme in New Zealand and in Australia. The general appearance of these houses is that some attempt has been made to avoid a monotonous repetition in the construction of the buildings, both in design and finish, but they are placed on exceedingly small blocks of land. The occupiers can never own them, although the rental



they pay is comparatively small, and all servicing is done by the Government. On the other hand, the occupier is debarred from planting trees on his property and from having livestock of any kind, although permission may be granted in certain circumstances.

#### 4. ORGANISATION OF DENTAL SERVICE.

There are two main divisions in the organisation of the dental service, (1) the School Dental Service and, (2) the Adolescent Dental Service functioning through the co-operation with the private practitioner, but ultimately to be carried on by a full-time salaried service. The functions of the dental division are as follows:—

1. Direction and co-ordination of all dental activities of the Department of Health.
2. Advising of other Government departments on dental problems.
3. The administration of dental legislation.
4. The representation of the Department of Health on the Dental Council of New Zealand.
5. The representation on the Dental Committee of the Medical Research Council.
6. The administration of Social Security Benefits (Dental).
7. Inspection of dental activities in public hospitals.
8. The administration of the Dental Bursary system.
9. The organisation and direction of dental health services for the age group, 2-16 years. (Legislation is provided for this service to be given ultimately up to 19 years of age.)

##### (1) *School Dental Service.*

The general organisation is centred on Wellington as the core, with seven districts each with a Principal Dental Officer in charge and service provided by school dental nurses at fixed clinics of either an A or B type. The duties of the Principal Dental Officer are supervision of the treatment provided by the existing personnel in his area, to correlate the demands for treatment in relation to the staff provided and to carry out inspections of treatment and to implement any of the functions listed above. As the basis of treatment is one dental nurse to 500 children, it is essential for the Principal Dental Officer to have statistics regarding school children of the various age groups within his area and to ascertain the distribution of staff in relation to these numbers. Since the service is provided in general through fixed clinics established at schools, the school populations are important and, of the areas visited, the Stratford School, housing 1,500 children, was the largest dealt with in the tour. This would necessitate an A and B clinic, the A type clinic having two nurses and the B type, which is the basic unit type, one nurse.

One feature in the service is the innumerable records which are made but which seem necessary to provide control so that the child is inspected at least once every six months and the mouth kept in a healthy state. There are approximately 25 forms which must be filled in from time to time, and in the case of store requisitions these are in quadruplicate. The major work carried out by the school dental nurse is restricted to amalgam restorations, using both silver and copper alloys: few silicate restorations are inserted, and it was rare to see any extractions of teeth being carried out. The rest of the work deals

with the presentation of dental health education campaigns and toothbrush technique for oral hygiene. Part of the nurse's duties must be restricted to health education either for the children or the parents. The school dental nurse is particularly well-trained and adapted for this work and many of the clinics exhibit examples of poster work carried out by the dental nurse in addition to many provided by the Department of Health. This Department allocates an annual grant for health education, of which £2,000 is devoted to dentistry. This is absorbed in the production of leaflets, pamphlets, posters and advertising in the daily press.

The limitation of service on the basis of 500 children to one dental nurse has prevented all children receiving the benefits of treatment but it has ensured continuity of treatment in an area.

(2) *The Adolescent Service.*

As mentioned previously, this has been in operation for something less than two years and provides dental treatment for adolescents with the co-operation of the private practitioner. It is based on a fee-for-service dental benefits scheme which will provide a limited form of treatment for the adolescent up to 19 years of age, the aim being, of course, to have a full salaried service for adolescents up to 19 years of age and ultimately eliminate the need for practitioner co-operation. The New Zealand Dental Association has agreed to support this proposal but is opposed to any service being provided for adult population. (Any indigent adult, however, can receive treatment from a dental officer attached to a public hospital for the relief of pain.) This service is available only on application from the parent of the adolescent or his guardian and is available if the patient has been receiving regular dental treatment and his mouth is healthy and a period of not more than three months has elapsed after he has ceased to receive treatment from a school clinic or a private practitioner.

Adolescent treatment is in effect a continuation of primary and intermediate school treatment, and it will be continued until a patient has reached his nineteenth birthday or such earlier age as the Minister may from time to time appoint (for the present, the maximum age has been fixed as the sixteenth birthday, and the age will be raised year by year according to the capacity of the profession and Departmental Dental Officers to absorb the additional age groups).

Treatment is essentially of a nature designed to conserve the natural teeth. No provision is made in the normal schedule of treatment for extractions, as under this system extractions should be unnecessary, except in special cases for which specific approval must be obtained.

As in the case of the school service, dental supervision of adolescents is on a basis of examination and treatment at six-monthly intervals.

(3) *The Interim (Private Practitioner) Service.*

There is free choice of dentists, and dentists have the right to decline patients.

The authorised range of treatment which may normally be provided as Dental Benefits, together with the approved fees, is shown in the schedule to the Social Security (Dental Benefits) Regulations, 1946. (*vide infra*).

Dentists are free to exercise their professional judgment, and are encour-

aged to carry out all forms of treatment that are normally given in a good conservative practice. The aim is to maintain a high standard of dental health and, if in the opinion of a dentist a case demands a form of treatment that is not provided for in the schedule, there is provision (Section 4 of the Regulations) for such treatment to be approved by the Principal Dental Officer of the district as a charge on the Fund.

The Department is empowered to inspect patients treated under these Regulations.

(4) *The Salaried Service.*

The salaried service for the dental care of adolescents is being staffed by duly qualified dental surgeons, and is being organised on a preventive basis. The following are features of the organisation:—

- (a) Dental officers are appointed at a ratio of one to 750 of the eligible age groups.
- (b) Enrolled patients receive attention twice a year.
- (c) Use of Xray for diagnosis.
- (d) The carrying out of necessary operative and other treatment for both hard and soft tissues.
- (e) Orthodontic treatment (for patients referred from primary school clinics).
- (f) The adoption of modern methods of caries control (*e.g.*, lactobacillus count, regulation of carbohydrate intake, fluorine therapy, etc.).  
N.B. This is only in the initial stage and little has been achieved in the implementation of preventive dentistry on a wide scale.
- (g) Education of the lay public in dental disease as a menace to general health and well-being, and in the means of controlling it.

Salaries range from £585 per annum for newly qualified graduates to £825 for dental surgeons of seven years' standing, with opportunity for further promotion to Senior Dental Officer and Principal Dental Officer status and to the higher administrative and teaching appointments. The Director's salary is £1,475 per annum and that of the Principal Dental Officers rises to £1,025 per annum. There is a liberal scale of leave, and all dental officers are eligible to join the Government Superannuation Fund. An approximate figure for income from private practice was suggested at £1,500-£1,800 per annum.

Dental officers are responsible to the Principal Dental Officer of their district and work under his direction.

5. WELLINGTON TRAINING SCHOOL.

With the headquarters of the service at Wellington, the training school has been developed there and, together with an annexe at Tinakori Road, provides the basic training for the school dental nurse.

Previously, positions in the School Dental Service were much sought after, and consequently it was possible to maintain a high standard in the student nurses selected for training. Education, health and personality are all taken into consideration in selecting candidates. Preference is given to young women who have passed the University Entrance Examination while the School Certificate Examination (with five years secondary education) is the minimum educational requirement. A high standard of physical fitness is also demanded, and a special Medical Board examines all candidates before they are finally

selected. Chests are X-rayed as a routine procedure; special attention is paid to the feet and to the throat; candidates must have well-cared-for natural teeth. All candidates who fulfil the primary conditions laid down are interviewed by a selection committee consisting of the Principal of the Training School and Matron before the appointments for the year are made.

Appointees are required to enter into an agreement not to leave the Service of the Department during training, unless on medical grounds, and to serve for at least three years after completion of training. The student dental nurses enter in groups of fifty at six-monthly intervals. The rapidly increasing school population has created a fresh problem and an auxiliary Training School is being established in Wellington in order to build up the field staff to the strength necessary to cope with the greatly increased number of children.

The Dominion Training School for Dental Nurses, situated at Willis Street, Wellington, which was completed in 1940, is already proving inadequate to meet post-war conditions, and the addition of a new wing is projected.

The course of training is set out below. It will be noted from this that, during training, student dental nurses who live away from home are accommodated in the Department's hostels which are conducted in association with the Training School.

For clinical operative dentistry, the aim is to have an instructor for every ten or twelve student dental nurses and the course covers a total of 2,600 hours. The training is undertaken at the Willis Street Clinic under the direction of the Principal, who is assisted by a Vice-Principal and Senior Clinical Officers and dental officers as instructors, together with Tutor Sisters. Tutor Sisters are dental nurses who have had considerable clinical experience and who show an aptitude for teaching work. These are brought to the Training School and spend their time on instructional work. In addition to the main Training School, there is an annexe at Tinakori Road with a dental officer in charge, with student nurses under the control of dental officers assisted by tutor sisters. At this annexe the advanced pupils work prior to their final examination and appointment to the field; it should be noted that if the work of the pupil is unsatisfactory, her services may be terminated and termination of employment of the dental nurse may be carried out by the Government for misdeemeanour or unsatisfactory service.

The subject matter of the course is as follows, with approximate hours of study in each case:—

**FIRST SIX MONTHS:** General instruction.

Poster work—60 hours at the Technical College.

Hygiene, dental anatomy—46 hours, plus 69 hours plaster carving of teeth.

\*Anatomy—54 hours.

\*Histology—48 hours.

\*Physiology—25 hours.

Use and care of equipment—66 hours.

Subjects marked with an asterisk are given in general terms and in elementary form.

**SECOND SIX MONTHS:**

\*General pathology—30 hours.

Operative dentistry, lectures—38 hours.

\*Dental surgery and pathology—26 hours.

Preliminary operative training—240 hours, during which time three sets of restorations in teeth must be completed.

Child welfare—12 hours.

\*Orthodontics, introductory course—10 hours.

Local anaesthesia and exodontia—15 hours.

\*Materia Medica—23 hours.

The subjects marked with an asterisk are treated in elementary form and are designed to give the dental nurse knowledge sufficient to make her efficient in the very restricted field of training given.

A study of appointment cards of the students indicate that the insertion of an amalgam restoration occupies three appointments covering an hour each.

In the final year, in addition to clinical operative dentistry, time is spent on organisation and administration—41 hours and dental health education (lectures)—24 hours.

The dental nurse is also required to give a series of dental health lectures.

The course in restorative work is restricted to amalgam and silicate restorations and is so designed to avoid a wide knowledge and training in the whole field of operative dentistry known today. Amalgam restorations are made employing both silver alloys and copper amalgam and from the many hundreds of restorations examined the work appears to be of an exceedingly high standard. Very few silicate restorations are inserted and the practice is for the Dental Nurse to refer to the private practitioner any restorations which may be extensive or involve some complicated procedure. Similar comments can be noted in regard to training in extraction of teeth. This reference of patients to a private practitioner is now greatly facilitated by the incorporation of the Social Security Benefits on a fee-for-service basis for children and adolescents up to sixteen years of age. The same procedure provides the mechanism for referring complicated operative procedures and complicated surgical treatment.

There are periodical examinations during the course of training and the final examination, which includes written, oral and practical tests, is conducted by a Board of Examiners which includes a selected private dental practitioner of recognised standing and the Principal of the Training School. When the training is complete, the dental nurse commences field work under the guidance of a Senior School Dental Nurse for a short introduction to the problems encountered in the clinics.

During the tour clinics were studied, apart from the Wellington clinic and the Tinakori Road annexe, at the following schools:—New Plymouth Public School, Fitzroy Public School, Waitara School, Mahoenui Valley School, Poi Poi, Otorohanga, Te Awamatu (2 schools), Rotorua, and in each case children receiving treatment were present. At Stratford, a very large consolidated school, a recently erected A type clinic was inspected which had not yet been opened for the receipt of patients. It gave an excellent example of how the clinics were designed and the attempt to provide modern attractive surroundings for patient and nurse.

During the course of training the school dental nurse must live either at home or at a hostel provided by the service. A charge is made for the latter.

The general impression gained from a close study of the clinics in operation and of the main teaching centre is that within the technical limitations of the training the aims as outlined by the Director of the Service have been achieved,



i.e., the establishment of a healthy mouth in the school child. It has, however, developed in the minds of the parents the attitude that dental care has been a responsibility of the Government and many adolescents can be observed with dental defects. It would be fair to say that the dental health education campaign can be labelled as relatively futile, for one observes the same high consumption of refined foods as in Australia, despite the interest in dental treatment.

It was also noted that the dental defects of recruits in World War II were as high, if not higher, than those listed for Australian recruits of the same age groups. It can be assumed, therefore, that the dental service as existing has achieved nothing in regard to the reduction of dental disease and such a result would not be unexpected, since there has been no emphasis on preventive measures up to the present time.

*The Willis Street Clinic, Wellington.* This is the training school proper. It is a large modern building of three stories containing lecture rooms, administration rooms, waiting and reception rooms for patients, cloak rooms, a cafeteria and lounge for the student dental nurses and other subsidiary rooms for staff, locker rooms, etc. The main feature is the large operative clinic with 49 chairs; the orthodontic clinic, the exodontic clinic and the dental health education department. In the various clinics visited, graduate dentists were in control and are responsible for the overall supervision and training with the assistance of tutor sisters. The interior of the clinics and various departments are modern in design with special colour schemes for each department. As an annexe to the main operative clinic, a small room is set aside for instruction in toothbrush technique where the equipment is so designed that each child can be taught the technique of correct toothbrushing and, at the same time, observe his own actions and movements. Attached to the exodontic clinic are special retiring rooms to enable the patients to rest after the removal of teeth. The main waiting rooms are also designed for the comfort of the patients attending the clinic and have retiring rooms for parents and nursing mothers to attend to small children, and cloak rooms. These cloak rooms are heated so that, if rain-soaked clothes of the patients are placed in the cupboards at the commencement of appointments, they can be dried before the patient leaves the clinic. The cost of the clinic in 1941 was £100,000 (approx.), of which £20,000 was for equipment.

At the Tinakori Road Annexe advanced clinical work is undertaken by the dental nurses and the clinical facilities are of the same order as in the main clinic but the building is old, in wood, and the interior decorative scheme is not of the same standard as at Willis Street. It would also appear that the facilities for patients are greatly restricted.

#### 6. THE SERVICE IN OPERATION.

In order to study the service in operation the Director organised three tours by three different parties through the North Island and altogether the party on the West Coast inspected eight schools and attended a demonstration talk on dental health education.

New Plymouth (West End and Fitzroy Street), and Waitara schools are provided with Type A clinics and children were receiving treatment at the time of inspection. An opportunity to inspect the mouths of the patients receiving treatment and those waiting was taken and the standard of work compared favourably with that seen in the training school.



At West End (New Plymouth) the following records indicate the amount and range of work completed by one nurse during March.

Restorations .....	270
Prophylactic odontotomy .....	132
Extractions of deciduous teeth .....	26
Scaling and cleaning .....	115
Patients re-examined (108 of these were completed) .....	110
Total attendances with nurse .....	163

The record sheet for 31st March, 1949, showed:—

Patients .....	6
Restorations .....	9
Cleaning and scaling .....	2
Re-examinations .....	3
Records .....	2 hours

A comparison was noted at Fitzroy school between Maori children and white children. In both mouths the arch formation was excellent but considerably more restorations were present in the mouths of white children.

At Mahoenui school, with about 60 pupils, an inspection of one class was carried out and, without exception, of the 30 or more mouths examined, all were receiving or had received dental treatment from the School Dental Nurse. This school had facilities provided by what is known as a sub-base, a room set aside where the dental nurse could work at certain times throughout the year. Notification of the nurses' attendance would be sent to the school and arrangements then made for the children to attend. In this way the practice is for the nurse to attend the school at intervals of six months, on each occasion remaining in the area long enough to complete all the necessary work for the children. The main clinic was at Poi Poi, a distance of some sixteen miles, where a consolidated school was established with a school population sufficient to ensure some 250 children attending the clinic within the school grounds.

Otorohanga. This town, with a large consolidated school for children of all classes from the nursery up to matriculation standard with an attendance of over 1,000, necessitates an A class clinic. The school itself and clinic provide an example of organisation which is unique and represents what is done in many centres of New Zealand. The establishment of a consolidated school has eliminated many schools in outlying centres and the children are brought from these centres in buses, the school-teachers acting as the drivers. Where accommodation problems arise, the school-teachers in many cases are living in the buildings formerly used in the outlying schools. Some of the children travel a distance of 25 miles to reach the school, and it is clear that some organisation is required to avoid confusion, delay and hardship on the child who has to travel these long distances.

Te Awamutu. At this town there were two main schools with a total enrolment of over 1,800 and there were two clinics established, one at each school, type A. The area supplied by these clinics covers a distance of 54 miles in width, with a sub-base, a Maori settlement, at Kawhia some 40 miles distant. At the sub-base, treatment was also extended to a further settlement some 5 miles distant.

Altogether there were 23 schools in the area and at one of the clinics children from the local Convent received treatment.

Other clinics were inspected at Rotorua, where there is a large consolidated school, and at Hamilton. At Rotorua an opportunity was taken to inspect the mouths of children at the Maori reservation and, of these, the age range was from two years up to sixteen years of age. In almost every case there were few restorations in the mouth and the arch formation was good.

At the large schools visited, it was noted that the class rooms were designed to permit adequate light to enter the rooms, and the walls facing the northerly aspect were constructed of glass and arranged to open to admit adequate sunshine. At all the large schools free distribution of milk is made.

In order to determine what the profession felt about the service, a formal discussion was held with representatives of the New Zealand Dental Association in Wellington, and it is clear that the official attitude is that the school dental service scheme as provided by the dental nurse is supported by the New Zealand Dental Association without any opposition. It is considered that it is the only way to deal with the immense problem; further, that the only way to provide complete dental health is by a completely free service for all. However, at the present stage the Association will not support any scheme fostered by the Government which provides service for adults, it being contended that the adult should be responsible for his own treatment. Discussions with members of the profession at the various towns visited indicated quite clearly that there is no individual antagonism to the school nursing service. Rather, the contrary exists, *i.e.*, the scheme is wholeheartedly supported. However, its defects are admitted, in that it does not provide service for all the children and, secondly, that the dental condition of adolescents is not as good as one would have expected. In other words, the child when he becomes an adolescent at the most difficult dental period of his life tends either to forget or avoid going to the dentist for treatment. This was the uniform opinion of all members of the profession consulted privately at any of the towns where a halt was made. Where adolescents were receiving treatment, they exhibited a high degree of co-operation.

#### OBSERVATIONS ON DISCUSSIONS WITH MEMBERS OF THE NEW ZEALAND DENTAL ASSOCIATION.

At the discussions held with representatives of the New Zealand Dental Association in Wellington prior to touring throughout the North Island, it was clear that the profession, despite some initial opposition in the commencement of the scheme, today wholeheartedly supports the School Dental Nurses Service on the grounds:—

1. That it is providing treatment for children which was otherwise unavailable.
2. It so develops an appreciation of the necessity for dental health in the children that the private practitioner has large numbers of adolescents coming as patients, fully conscious of the necessity for dental treatment and for co-operation in preserving dental health.
3. There has been no loss of income by private practitioners because of the scheme.

Furthermore, the New Zealand Dental Association not only pressed for some form of service in 1905 and subsequently through the years, but it has

made suggestions to the Government and to the Division of Dental Hygiene as to how an adequate dental service can best be provided.

The New Zealand Dental Association approved of the institution of the adolescent service and fee-for-service basis through the Social Security Benefits (Dental) Scheme, but was adamant that the service should not be provided to anyone beyond the age of 19 years. In practice this scheme is available at the present time for children up to six years of age and, although it is the aim of the Government to increase this service by the addition of an age group each year, this seems impossible because of the lack of personnel, both in private practitioners and in full-time salaried service. It should be noted that at the present time there are 23 New Zealand graduates and 8 overseas dentists working in the services.

From information obtained from the University of Otago, Faculty of Dentistry, the enrolment for 1949 is 195 and the output of graduates in the last five years has been 89 with the degree of Bachelor of Dental Surgery and six with a modified Certificate of Proficiency in Dentistry. The total output during the year 1921-1938 was B.D.S.—470; C.O.P.—132. An approximation of the cost of training for the graduate is set down at £410, excluding residence and maintenance. The Government is providing Bursaries on the basis of £70 per annum, plus £40 per annum living out expenses. These Bursaries are tenable up to five years and fees are paid from the Bursaries. The opinion of one dentist whose son is a Bursar is that the Bursary provides about one-third of the cost of the course.

Enquiries from members of the New Zealand Dental Association and from the staff of the School Dental Service shows that it was considered the maximum number of children who could receive treatment from a graduate would be between 750 and 800 per annum. This is a higher figure than suggested for the early stages of the graduate's service when the graduate would be somewhat slower than the School Dental Nurse. It was difficult to determine what percentage of the public refused treatment but an estimate was given of not more than 5%. No member of the New Zealand Dental Association had knowledge of a dental nurse wishing to engage in wider fields of dental practice than those in which she was trained, although one nurse of many years' service, in answer to a question, considered that she would be capable of entering the field of private practice.

Finally, it appears that the adolescent service is the target of the present aims of the Government although members of the New Zealand Dental Association expressed the opinion that the ultimate aim appeared to be full-time salaried service for all ranges of treatment with an interim fee-for-service scheme. The opinion of the profession is that this is inevitable, that no health service can be satisfactorily provided unless it is on this basis, although it is realised that for practical reasons such a scheme could not be available for many years to come.

The success of the school dental service seems to depend upon:

1. Limitation of the number of patients for each dental nurse to 500.
2. The establishment of fixed clinics at suitable schools.
3. The limitation of the training of the dental nurse to a study of simple technical procedures in restorative dentistry and the demand for a high standard of technical proficiency in this limited field.

4. Regular recall of patients for inspection and treatment, where indicated, at intervals of not less than six months.
5. Determined resistance to political pressure to disperse operators throughout the community.
6. The careful selection of personnel.
7. Close contact formed between the dental nurse and the people of the district in which the work is carried out, particularly in relation to parents' organisations and other school bodies.
8. The establishment of School Dental Clinic Committees which promote community interest in the dental treatment and ensure the integration of the clinic with the school functions.
9. Complete support from the New Zealand Dental Association for the Dental Nurse Service and co-operation in the Social Security Benefits (Dental) Scheme.
10. Social consciousness of the people who appear to accept the principle that all health services must inevitably be supplied by the Government.

Before concluding it would be appropriate to list a schedule of the dental benefits and fees for service and the cost *per capita* of both this service and the school service.

	s.	d.
Examination and prophylaxis (twice each year), each time .....	10	6
Synthetic fillings—		
Each separate filling .....	15	0
Each of two or more approximal fillings when done together .....	12	6
Amalgam fillings—		
Each simple filling in anterior and back to and including second premolars .....	7	6
Simple cavity in molar (including two fillings in occlusal surface of upper molars, and including all buccal and lingual fissure extensions) .....	10	6
Two surface approximo-occlusal fillings—		
In premolars .....	12	6
In molars .....	15	0
Mesio-occluso-distal—		
In premolar .....	21	0
In molar .....	25	0
Restoration premolar .....	25	0
Restoration molar .....	30	0
Maximum fees for any operation—treatment of one tooth (excluding root-canal treatment)—		
Premolar .....	25	0
Molar .....	30	0
Root-canal treatment—		
Pulp removal and root-filling .....	21	0
Treatment of septic root canals with subsequent root-filling, but without X ray; maximum fee .....	30	0
X rays—		
Bite wing (two films: one each side) .....	10	6
For root treatment (two films: one before and one after) .....	10	6

An extract from the Annual Report of the Department of Health, 1948, discloses some interesting figures on costs and persons enrolled in the Service: "Excluding a number of persons who applied for enrolment but who for various reasons were not eligible, the numbers who were actually enrolled between the 1st February, 1947, when the service was inaugurated, and the 31st March, 1948, were:—

For general dental benefits .....	47,354
For special dental benefits .....	16,987

Total 64,341

Of these, the following ceased to be enrolled prior to 31st March, 1948:

General benefits: Patients who attained age 16 prior to 31st March, 1948 .....	4,123
Special benefits: Patients whose treatment was completed prior to 31st March, 1948 .....	8,084

Total 12,207

Thus, at the 31st March, 1948, the numbers actually on the roll were:—

For general dental benefits .....	43,231
For special dental benefits .....	8,903

Total 52,134

Amounts paid for dental benefits up to 31st March, 1948, were:—

For general dental benefits .....	£85,413 3 11
For special dental benefits .....	19,746 6 4

Total £105,159 11 3

Number of patients in respect of whose treatment the above amount was paid was:—

For general dental benefits .....	22,717
For special dental benefits .....	7,831

Total 30,548

Average cost per person:—

For general dental benefits .....	£3 15 2
For special dental benefits .....	2 10 5

General Av. £3 2 9

The cost *per capita* for the school dental services on the basis of 233,981 patients is 19/8 but with capital costs of clinics and depreciation and maintenance this would rise to £1/1/4."

The critical comments on the scheme can be grouped into two main issues:—

1. With the large areas involved in each dental district, the Principal Dental Officer finds his time fully occupied in various administrative problems and it is clear that the dental nurse must assume a considerable degree of responsibility. It, therefore, follows that she must examine the patients, carry out the diagnosis and estimate the time involved in carrying out the treatment and arrange the plan of treatment. In regard to diagnosis, this appears to be, on theoretical grounds, the weakness in the service inasmuch as the School Dental Nurse,

although trained adequately in a limited field, is expected to make a complete diagnosis of the oral conditions of the mouth. The answer to this criticism is that the training is so designed that the dental nurse will recognise normality and her field of work and anything which requires treatment beyond that would immediately be referred to the private practitioner.

2. In larger centres where A type clinics are in operation and in B type clinics where the one school provides adequate children for treatment, ancillary personnel might be employed to increase the productive capacity of the nurse. The answer to this criticism is that the question of fatigue arises in a B type clinic, *i.e.*, with one dental nurse, and from experience it has been found impossible for one nurse to maintain a high productive level with a good standard of work without some change of duties. This change is brought about by the dental nurse undertaking the routine administration, such as records and general maintenance of the clinic. In a larger centre, where an A type clinic or an A plus B type clinic is in operation, ancillary personnel, however, could be used to marshal children as well as assist at the chairside and attend to equipment maintenance.

In conclusion, I would like to emphasise that, despite the wonderful achievements of this Service which has been an experimental operation for so many years, the one important danger to the dental profession and the public is that there is a too ready tendency in the minds of the public and legislators to accept this restricted form of service as being the beginning and end of all types of dental services.

It is, therefore, highly commendable that the New Zealand School Dental Service has been able to sustain for so many years such a good standard of treatment and, at the same time, has done nothing to disrupt the obvious harmony between the profession and the School Dental Service. Clearly this is due to the wise choice of an administrative staff and in this regard New Zealand must be considered exceedingly fortunate.

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## DENTAL MATERIALS

### CURRENT NOTES (No. 3).\*

#### "Self-curing" Acrylic Resins.

The latest addition to the list of materials of value to the dentist is the methyl methacrylate powder and liquid combination which, when mixed, will cure in 10 to 20 minutes *without the application of any external heat*. It is obvious that such a material, if suitable in other respects, will prove of inestimable worth to the profession.

Quite a few "self-curing" dental resins have appeared on the American market during the last two years, but this means little to Australian dentists with the dollar situation as it is. Fortunately, however, for those who like to experiment with new materials these acrylic resins are now available from Britain both for direct restorations and prosthetic uses.

As a consequence some dentists have written to the Bureau for further information on these unique materials and an expression of opinion on the various claims made by the manufacturers. Although our investigations on self-curing acrylic resins are by no means complete it was felt that a preliminary note would be appropriate at this stage.

#### General Properties.

It must be remembered that these self-curing acrylic resins behave in exactly the same manner as the more familiar dental acrylic materials except that one has to become accustomed to the idea that no heating or boiling is necessary. Polymerisation of the liquid part of the mixture takes place at mouth temperature or even room temperature after it has been mixed with powder. In doing so it generates heat which further speeds up the action. An overall shrinkage will inevitably follow and care should be taken to keep this factor under strict control particularly for restorative work where adequate pressure must be maintained if a high degree of success is looked for.

Chemical tests indicate that the new acrylic resins are not quite as fully polymerised as acrylic inlays or denture bases<sup>1</sup>, and this is reflected in their hardness which may be about 5 Brinell or Knoop units below that normally found. This is a disadvantage, of course, but it is doubtful whether it is sufficient to militate against the use of self-curing resins, considering that the softness of completely cured resin compared with enamel is only partially reflected in clinical behaviour.

Apart from hardness, therefore, the product resulting from "cold-curing" is almost identical with the familiar product, although there remains a remote possibility that the new activating agents (usually dissolved in the monomer) may have some clinical significance. Readers interested in the type of activator used for initiating polymerisation of methyl methacrylate at oral and room temperatures will find some information in an article by Docking<sup>2</sup>.

#### Direct Restorations.

The American Dental Association Council on Dental Research has recently announced<sup>3</sup> that pending the results of investigations now in progress their advice is to use the new acrylic resin for the types of cavities commonly suitable for silicate cement.

\*Contribution from the Commonwealth Bureau of Dental Standards.

1. Taylor, P. B. and Frank, Sybil L.—Self-curing Acrylic Resins. Paper presented before the Materials Group, I.A.D.R. 25th June, 1949. (Typescript.)
2. Docking, A. R.—Standard Specifications and Technical Processes in Acrylic Resins for Dentistry. *Dent.J.Aust.* 22:1-11 (Jan., 1950).
3. A.D.A. Council on Dental Research—Statement on Direct Resinous Filling Materials. *J.A.D.A.* 40:243 (Feb., 1950).

Acrylic resin will no doubt prove superior to silicates in regard to solubility, toughness, resistance to discolouration, and a strong point in their favour is the absence of acid. In marked contrast to the phosphate cements, acrylic monomer seems to be at the most only a mild pulp irritant so that cavity linings are contra-indicated for direct acrylic restorations.

As already indicated, one of the chief difficulties is to ensure that adequate pressure is applied to the restoration during polymerisation. To avoid shrinkage from the cavity walls or a porous product special care must be taken, firstly to use the minimum proportion of monomer consistent with satisfactory working properties and, secondly, to provide positive pressure. Special devices may be necessary for this; for instance, a method of applying "spring pressure" has been described by Malson<sup>4</sup>. As is the case with denture bases, the acrylic restoration will swell a little when bathed in saliva and this will give it that extra expansion which is desired for a perfect seal. To be sure of the best results in using these resins the manufacturer's directions should be followed as closely as possible.

#### Prosthetic Materials.

For a preliminary review on the use of the particular self-curing resin now available in this country for denture repairs, additions, relining and other prosthetic uses, the article by Cutler<sup>5</sup> in the British Dental Journal is recommended. He concludes that on the whole the manufacturer's claims can be regarded as reasonable. However, Cutler's whole-hearted praise of the "phenomenal affinity of the mix for the parent material" has not been shared by some dentists here. In fact the surface to be joined or added to must be well prepared by softening, using monomer or acrylic syrup, before full success is assured. Of course this must be done very cautiously so as to avoid crazing.

In regard to repairs we have found that if care is taken in the preparation of the ends to be joined, as discussed in an article by Ware and Docking<sup>6</sup>, the transverse strength of the repaired specimens is almost as good as that of the specimens repaired with the normal acrylic resins and cured by heating. There is one point to be watched, however. If there are internal or surface stresses in the parent material, such as arise from polishing for instance, crazing or even severe cracking may appear a short distance away from the repair material. This apparently is the result of monomer vapour being driven out of the material as it polymerises and rises in temperature. In the normal repair technique any internal stresses are, of course, relieved as the whole denture is heated. Comments on this point would be appreciated from practitioners who have used the new material for repairs.

In regard to the relining of full upper dentures, a word of warning is necessary as, unless care is taken in the proportioning and manipulation of the acrylic mixture, there is a danger of burning the tissues through the heat generated, irritation by the monomer driven off as a result, or a combination of both effects.

Here again the manufacturer's instructions must be carefully studied and applied for satisfactory results.

4. Malson, T. S.—Acrylic as a Restorative Material. *Dent.Dig.* 56:58-62 (Feb., 1950).
5. Cutler, R.—Accelerated Acrylic Materials; A Preliminary Review. *B.D.J.* 88:184-7 (April 6, 1950).
6. Ware, A. L. and Docking, A. R.—Strength of Acrylic Repairs. *Aust.J.Dent.* 54:27-32 (Feb., 1950).

*The* **ADA** **JOURNAL**  
**DENTAL** *of* **AUSTRALIA**  
**EDITORIAL DEPARTMENT**

**THE SUCCESS OF CONGRESS**

The climax to a period of long planning and intense activity came as a short week that will live long in the memories of those who attended the Twelfth Congress in Sydney.

The Congress was characterised by change of technique in the handling of certain problems and the presentation of new ideas and material.

We have no intention of recapitulating in detail any of these points but it is felt that the record should be made complete by mentioning clearly and unhesitatingly what we believe to be the factor which contributed so largely to the success of the Congress. Undoubtedly, the selection of Dr. J. V. Hall Best as President of the Twelfth Congress of the Australian Dental Association was the core of the outstanding success. Without question, the Congress Commission played its part as the team which was able to implement the many and detailed plans designed for Congress, but it was the President's dynamic personality and his great ability which secured for the Twelfth Congress the wealth of material from the United States which was presented.

The members of the profession should be everlastingly grateful for this happy choice.

You will notice that we included the profession as a whole and not just the members of the Australian Dental Association, albeit that they may comprise the bulk of the profession in Australia, for the public interest which has been displayed in dentistry during Congress and subsequently more than repaid the effort to secure the services of a skilled public relations expert. The selection of Asher Joel for this task was indeed a happy choice.

Linked inseparably with the success of the week's activity is the work of the two Vice-Presidents, so different yet so effective and vital to the success of any Congress. Professor A. J. Arnott must be congratulated for the imagination and energy he manifested in securing, through Amalgamated Wireless (Australasia) Ltd., the services of television for his surgery clinics, as this means to an end required considerable organisation and had to be planned and developed in a short time. Dr. E. R. Magnus, as President of the New South Wales Branch, was the perfect host to many of our interstate visitors and gave unstintingly of his time and thought to the comfort of those

visitors and, particularly, the overseas visitors. This work did not cease when Congress had been concluded, for there was the series of lectures given by Dr. Wilfrid Terrell in the week succeeding which absorbed his time considerably.

The various committees functioning in support of the Executive Committee must also receive their full mead of praise, for without them success would have been impossible.

Interstate and country visitors who had the opportunity to avail themselves of the services of the Accommodation Committee will, we feel sure, commend the unstinting work and organisation of detailed requirements by Colonel Finnie.

The Dental Exhibition was a major undertaking which could have been fraught with grave risk but it was outstandingly successful and demonstrated what can be achieved in this direction—a success which brings its fruits to exhibitors and profession alike. The combination of the Exhibition and Film Theatre was an example of skilful appreciation of the profession's interests.

The inclusion of public sessions in the Dental Exhibition was an entirely new departure and, but for the enforced restriction of publicity of this feature—due to newsprint shortage, it has demonstrated the value and wisdom of encouraging the public to learn more about dentistry and the background to dentistry, rather than resting content on the sporadic distribution of a few pamphlets.

In a short note of appreciation it is intended to highlight the main themes and a general appreciation has been officially expressed elsewhere in the Journal. We believe we express the appreciation of all the members of Congress for the work which one of the profession's outstanding men undertook and so brilliantly executed not only during Congress, attending to his official duties and acting as a gracious host, but long before Congress when he was able to journey overseas and encourage the valuable interest of so many of our Americans colleagues in the Congress and secure, in addition, the services of one of America's outstanding prosthetists.

The Twelfth Congress of the Australian Dental Association, inseparably linked with the name of the President, Dr. J. V. Hall Best, will live long in our memories.

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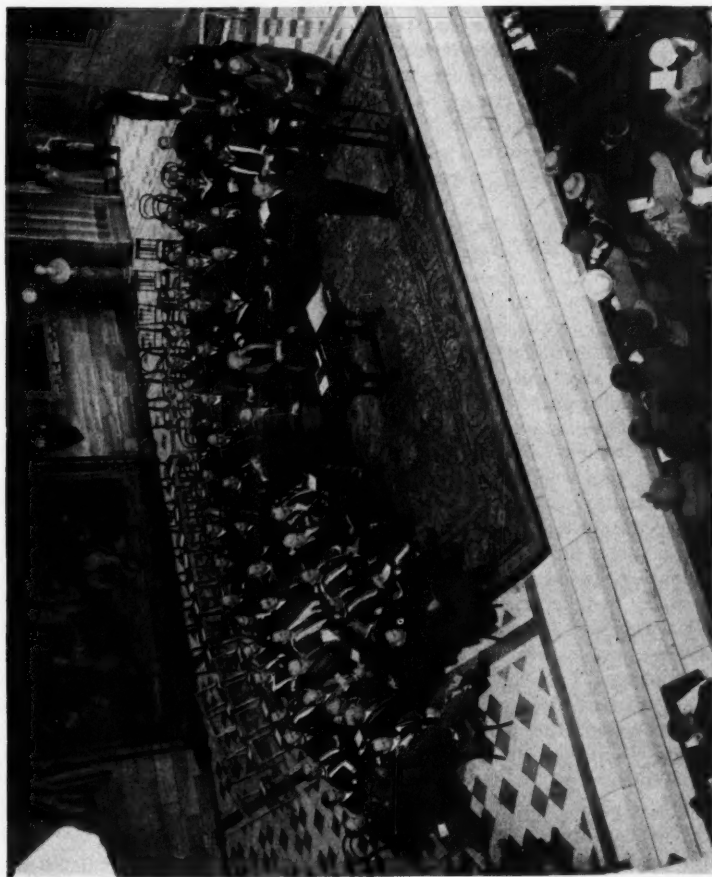
## **THE TWELFTH CONGRESS OF THE AUSTRALIAN DENTAL ASSOCIATION**

### **OPENING CEREMONY**

Sydney, August 21, 1950.

The Opening Ceremony of the Twelfth Congress of the Australian Dental Association was held in the Great Hall, the University of Sydney, in the presence of His Excellency, Lieutenant-General Sir John Northcott, K.C.M.G., C.B., M.V.O., and delegates representing international, national and state dental organisations.

At eleven o'clock the official party entered the Great Hall, the seating of which was filled to overflowing, and at the conclusion of the National Anthem the President of the Australian Dental Association invested Dr. J. V.



His Excellency, Sir John Northcott, K.C.M.G., the Governor of New South Wales, formally opening the Twelfth Australian Dental Congress in the Great Hall, University of Sydney.



Hall Best with the insignia of office of President of the Twelfth Congress of the Australian Dental Association.

His Excellency, Lieutenant-General Sir John Northcott, then officially opened the Congress. During his speech he commented on the wide representation amongst the assembly, the colourful and dignified procession, and the presentation of a carefully balanced programme which gave attention to the social and sporting functions and the many things of scientific interest and attraction. He expressed the hope that the discussions would be the means of imparting further knowledge to the dental profession throughout the Commonwealth and, in particular, of bringing to them the very latest developments of dental science.

Professor A. J. Arnott, Dean of the Faculty of Dentistry and Vice-President of the Congress, extended a warm welcome to the personal representatives of the American Dental Association, Dr. W. H. Terrell, the Canadian Dental Association, Dean R. G. Ellis, the New Zealand Dental Association, Mr. Amos McKegg, and he also read messages from the Eleventh International Dental Congress, the British Dental Association, the Dental Association of South Africa, Professor Arthur Amies, Dean of the Faculty of Dentistry, Melbourne, Professor R. V. Bradlaw, University of Durham, the Australian Dental Association, Queensland Branch; Gilbert Henderson, O.B.E., of Western Australia, and many others.

In particular, was a message from His Excellency, the Governor-General, The Right Honourable W. J. McKell:—

"I am extremely happy to extend cordial greetings to the delegates assembled for the Twelfth Australian Dental Congress and I would like to extend a particular welcome to the delegates from overseas.

"This is the first post-war Congress to be held in Sydney and the largest to be held in this country, so it is of special significance in view of the development of dental science and practice. The knowledge gained consequent upon the discussions to take place will enable its members to add to that fine record of service which the Australian Dental Association has established. I extend to you all my best wishes for the success of the Congress and for a pleasant stay in Sydney."

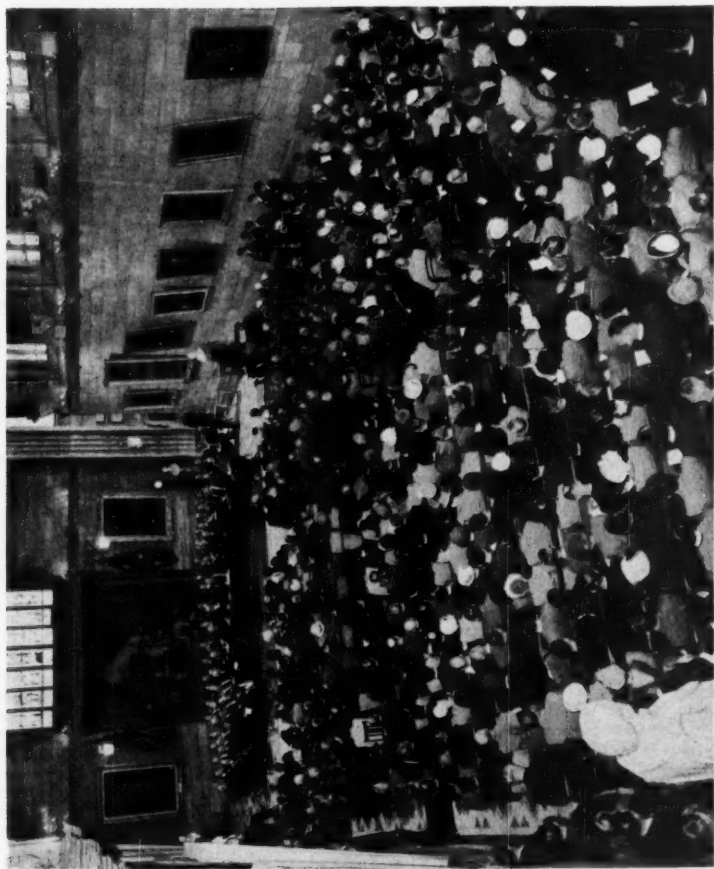
Dr. Terrell, in reply, conveyed messages of goodwill from the American Dental Association, the American College of Dentists, the Southern California State Dental Association, the American Denture Society and the American Academy of Denture Prosthodontists.

Dean Ellis replied on behalf of the Canadian Dental Association and the University of Toronto, and Mr. McKegg on behalf of the New Zealand Dental Association. Both referred to the bonds of friendship which existed as a strong tie between their own countries and Australia.

After statements by The Right Honourable the Minister for Health, Commonwealth of Australia, Sir Earle Page, and The Honourable the Minister for Health, New South Wales, Mr. M. O'Sullivan, the Vice-Chancellor of the University of Sydney, Professor S. H. Roberts, delivered a short address.

The President, Dr. Hall Best, in concluding the opening ceremony with a short address, welcomed His Excellency Sir John Northcott, The Right Honourable Sir Earle Page, The Honourable Mr. M. O'Sullivan, the overseas visitors and the delegates, and expressed his deep appreciation of the valuable assistance rendered to the Congress Commission by the Senate of the Univer-





Wilfrid Hall Terrell, replying to a welcome to overseas guests at the opening ceremony, Twelfth Australian Dental Congress.

sity of Sydney, the Board of Control of the United Dental Hospital, Professor A. J. Arnott and Mr. C. Croker, for the institution of television for the convenience of large numbers of members who wished to attend surgery clinics and, particularly, to Amalgamated Wireless (Australasia) Ltd., who provided the television service. He wished also to express his sincere gratitude to the Congress Commission for the work done in preparation for the Congress, to the Congress Executive Committee, the Secretary and his staff and, in particular, to the Ladies' Committee.

The Congress, planned to encompass in such a brief time a wide range of activities, would demonstrate the truth of the remarks, "Under the harsh tutelage of war we have learnt many lessons, and surely the most oft-repeated and significant of those lessons is that science lies at the very root of power, progress, prosperity and the conservation of life itself." In the realm of dental science, the research of many brilliant minds has been concentrated on the control of dental caries, including biochemistry, bacteriology and nutrition. These new concepts have swept away many of the misconceptions which have motivated the activities of modern communities. He hoped that the function would be one of the most stimulating scientific Congresses held for some time and he looked forward to enlightenment from Dean Ellis, Dr. Terrell and the other distinguished visitors who would lecture throughout the various sections of Congress.

He concluded by expressing the earnest hope that all would enjoy Congress and that the social functions would combine with the technical aspects in making the stay of all in Sydney a most enjoyable and pleasant one.

Space does not permit a verbatim report of all the speeches made during the Opening Ceremony, but the remarks of the President of the Australian Dental Association, Dr. W. S. Wilkinson, and the statements of The Right Honourable the Minister for Health, Sir Earle Page, and The Honourable the Minister for Health, Mr. M. O'Sullivan, are here recorded.

#### **Investiture of the President of Congress by the President of the Australian Dental Association**

Distinguished guests, ladies and gentlemen,

This is the Twelfth Congress of the Australian Dental Association's national organisation, whose membership now comprises some 2,400 dentists.

The prevention of dental disease is now a major factor in any public health platform and the recognition of this in Australia has brought this Association into much closer contact with the Commonwealth.

It is gratifying to record that Australian governments, whatever their political colour, have sought the advice and co-operation of the Australian Dental Association and, to the best of their ability, have acted upon that advice. We have had no divisions with the Government but, on the contrary, much encouragement.

The despatch of a delegation to New Zealand, the announcement of the Dental Material Research Bureau at a cost of some £4,000 per annum, and the substantial sum granted by the Medical Health and Research Council for dental research are all practical examples of this encouragement, and I feel confident that the excellent relations will continue under the administration of the present Minister for Health whom we are privileged to see on this platform.

Congresses of this nature are not political but rather expressions of the associations of scientific organisations. The Federal Council has delegated the organisation and conduct of this Twelfth Congress to the New South Wales Branch of the Association.

Dr. John Victor Hall Best, it is now my pleasing duty, by virtue of the authority conferred on me by the Federal Council, to invest you with this medal, the insignia of your office, and to name you the President of the Twelfth Congress of the Australian Dental Association.

**Address by The Honourable the Minister for Health, New South Wales,  
Mr. M. O'Sullivan.**

Mr. President, Your Excellency, ladies and gentlemen,

I may say at the outset that I am very pleased to have the opportunity of speaking to you on the occasion of this Opening Ceremony of the Twelfth Australian Dental Congress.

As Minister for Health, I, as well as the Government of which I am a member, am keenly interested in all movements which have for their objects the advancement of the health and welfare of the public. We recognise fully that dental fitness is one important prerequisite to general bodily health and, consequently, it has been and will continue to be our constant endeavour to support the efforts of the dental profession to improve the dental health of the people.

It is with pleasure that I refer to the tremendous development of the Dental Hospital of Sydney, which is the teaching institution for the Faculty of Dentistry of the University of Sydney. It is responsible for the provision of dental attention to certain classes of people, either free or at reduced rates. The Hospital, in addition, conducts two Travelling Dental Trains which also ensures treatment to eligible people in country centres.

Associated with this work the Dental Hospital has developed, especially in the field of preventive dentistry and reparative dentistry for children. The clinics attached to the various kindergartens in this city bear witness to this healthy progress.

A most recent development is the establishment within the Hospital of the Institute of Dental Research and the Department of Preventive Dentistry. These two hold a unique position in Australia and together form one of the most outstanding achievements during the period of office of my predecessor (Mr. C. A. Kelly). They can without question be said to mark the work of the Dental Hospital as being of the highest standard in the modern trend in dental practice.

All these developments have enlarged the activities of the Hospital and have rendered it essential to extend the Hospital buildings. The Government authorised a large expenditure on extensions and equipment to cost almost half a million pounds. This work is well in hand and, when completed, the Hospital will be one of which the Government, the Board of Control, and the dental profession may well be proud.

As one would expect, the cost of running this great Hospital is high, whilst the sources of revenue available to it are strictly limited. Consequently, the Government is obliged to make good the deficiency between income and expenditure by way of subsidy, which for the financial year amounted to £84,000.

It is considered that, having regard to the results achieved in the teaching, treatment and social service fields, this expenditure of Government funds is fully warranted.

You will all be aware that the State Government, through its Division of Dental Services, is endeavouring within limits to provide dental care and attention to school children. Consideration is being extended to a scheme to expand this activity in the schools. The scheme envisages the establishment of fully equipped dental clinics at larger schools, the employment of additional dentists, and the training and engagement of dental hygienists to perform minor treatment procedures.

The field is very wide and the implementation of the proposal will involve the expenditure of large sums of money. It is hoped that the Commonwealth Government, through the good offices of Sir Earle Page, will be prepared to consider financially assisting the States to enable these proposals to be put into operation as a part of the National Health Scheme.

Dentistry in this State has been set at a high standard by the University of Sydney. Entrance to the profession is through the University, thus ensuring the maintenance of high quality dentistry for the public. My Government, of course, is most anxious not to do anything which might have the effect of lowering that standard.

In conclusion, may I, on my own behalf and on behalf of my Government, convey to you, Mr. President, and the members of the Congress Commission, the very best wishes for the success of the Congress. I have no doubt that much good will be derived by members of the dental profession from its deliberations and the knowledge obtained will be passed on for the benefit of the public.

Mr. President, I have had the honour of being Minister for Health only for about four or five weeks, and I feel very grateful to you and your organisation for your courtesy in inviting me to participate in this important function. I am grateful to you, sir, for inviting me to join in the procession into this hall.

**Address by The Right Honourable the Minister for Health,  
Commonwealth of Australia, Sir Earle Page, G.C.M.G., C.H.**

I have pleasure on behalf of the Australian Government and people in welcoming distinguished visitors of the dental world to Australia for this Congress. I esteem it a privilege, as the Commonwealth Minister for Health, to address this Australian Dental Congress. I desire to ask your assistance, co-operation and advice in the onerous and enormous task that falls to my lot, to build up a National Health Scheme in Australia that will improve the standard of health and lessen the incidence of disease.

The importance of the dental profession to national health cannot be over-emphasized. Without food and drink mankind cannot survive. The mouth and teeth are at the doorway of the entrance of all food and drink into the human body. It is imperative that these two parts of our anatomy be kept healthy and able to function normally.

The function of dentists is to keep these portals of life healthy. This is the beginning of bodily health. From their health is built up a strong constitution of the individual that can resist disease. The work of the dentist is much more individual than that of any other profession.

In this age of mass treatment under Government direction that has steadily fallen upon us like a fog, dental disease cannot be individualized. Dental disease, the most universal of diseases afflicting mankind, is different from many other diseases like smallpox, pneumonia, etc., which have a tendency to run a course, build up an immunity in the body and cure themselves. But dental disease is unable to repair itself. It necessitates individual surgical intervention, not merely to one individual, but every individual tooth.

The cure of dental disease and repair work in dentistry, although important, will never be able to be made subject, satisfactorily, to complete Government control. Any governmental intervention, it seems to me, must be on preventive dentistry.

The present emphasis on preventive dentistry has opened a new vista whereby Government instrumentality can be brought to bear on the solution of the problem.

The first of the tremendous resources at the disposal of the Government that can be used is education. Secondly, the implementation of certain specific types of therapy may possibly reduce dramatically the incidence of dental caries and, thirdly, dietary regimes amongst a selected population group can be studied and the incidence of dental disease under varying conditions studied.

This preventive approach to the problem seems on examination the only way of accomplishing real results and of making real progress. In any clinic it is found that the number of cavities forming in the teeth grows faster than those already there can be remedied. What can be done in connection with these three approaches?

It is generally agreed that dental disease, which is so widespread in the community, has little or no direct relation to the income of any particular group; in fact, in certain countries which were unfortunate enough to suffer enemy occupation—Italy, the Channel Isles, Denmark, Norway, are outstanding examples of this—it was noted that on a greatly reduced dietary the incidence of dental disease rapidly diminished and, on the return to a nutritional status which to all intents and purposes was identical with pre-war standards, the incidence of dental disease is once again rising to former heights.

Therefore, we favour projects for the investigation of the efficacy of sodium fluoride therapy and the establishment of dietary regimes among selected population groups, so that the effect of these measures can be studied on the incidence of dental disease.

In view of the extraordinary contradictions which are met with in the causation of dental disease, particularly dental caries, it would appear wise to consider seriously the need for the establishment of experimental centres in various parts of this country and, certainly, the establishment of a pilot clinic in Canberra appears a most important first move. These experimental centres would be engaged upon not only the study of existing disease but also the food habits of the particular groups, together with their economic and social status, in such a way that it would be possible to forecast accurately the magnitude of the problem of the control and treatment of dental disease, say, for example, in children aged 2 to 14 years in Australia.

One of the greatest difficulties to be faced in any programme dealing with the treatment and control of dental disease is the incidence of the disease and also its prevalence. Unless treatment becomes effective immediately in any particular group, the prevalence of the disease rapidly increases by accumulation of defects, and this has been a factor which causes great concern in any country which has attempted to introduce treatment of dental disease purely upon a reparative or mechanical basis.

Treatment of dental disease simply by the extraction of teeth, whilst removing with celerity the offending members, plays little part of any value in a public health programme other than by the eradication of disease foci. Without supplementary and auxiliary treatment, it only leads to further complications for the patient and, consequently, the service.

If any scheme of dental treatment is to be organized, it is doomed to failure unless the co-operation and support of the profession can be obtained.

One factor which stands out particularly in this matter is the necessity for establishing diagnostic aids which may assist the dentist in assessing the vulnerability of patients to dental caries and enabling the dental practitioner to control the co-operation of the patient, should he desire to implement a dietary regime. Institution of dietary measures for an ambulatory population is fraught with complete hopelessness unless the practitioner can confront the patient with evidence that he or she is not co-operating in the particular regime set out. The most important measure which immediately comes to mind is the provision of mechanism to provide the dental practitioner with bacteriological counts as a diagnostic aid where caries control is to be attempted by nutritional means.

The standards of service in a public health dental service are most important. In other spheres of professional endeavour, for example, in medicine, the surgeon works as part of a team and he is constantly under the surveillance and inspection of that team as to the standard of his work; the lawyer's brilliance or his deficiencies are clearly exposed in his declamation in the courts, but the dentist has been forced to work as an isolated operator. It is essential, in any plan that is set down, that incentives and encouragement should be designed to ensure that the aim shall be that all treatment is of the highest standard. For example, a minimum standard would be:—

1. Periodic examination, including Xrays and prophylaxis of the teeth.
2. Restoration of carious teeth with the appropriate material.
3. The use of adequate anaesthesia, where necessary, for the control of pain.
4. The application of preventive orthodontic appliances to maintain the normal arch relationship to the teeth.
5. The treatment of periodontal disease and mouth infections.
6. The extraction of hopelessly diseased teeth.
7. Surgical procedures, where necessary, for the health of the patient.

These standards are the minimum which ought to be considered in any plan for treatment of children.

The general plan should include parent and patient education to encourage the application of scientific knowledge for the prevention of disease and the promotion of health.

Finally, clinical research centres should be established where study in the field of the conditions of dental disease and the effects of any planned treatment can be adequately undertaken—this is a prerequisite of any organized plan for dental treatment.

Action along these lines offers greater opportunity of useful results than any attempt to spread our very limited dental population thinly over the vast expanse of Australia. This would involve us in the unending treatment of adults at the expense of the under-age group, in which preventive treatment would pay the best dividends in terms of national dental health.

In England it was found that too comprehensive a scheme, which put too heavy a strain on the dental personnel, resulted in the adult population being treated at the expense of a satisfactory service for children.

The failure of health schemes in other countries has been largely due to attempting too much at once before building the foundations to do the work properly.

We in Australia will get our foundations right before we start to build too extensive a structure of dental treatment. In the meantime, I congratulate the dentists of Australia on the way they are working to cope with heavy demands. I am sure a salaried governmental dental service would not accomplish nearly as much. Under present conditions personal interest in, and knowledge of, patients' conditions stimulate extra work.



## AN APPRECIATION

The Congress Executive wishes to express its appreciation to the various Chairmen and Vice-Chairmen of Sections, members of Committees and other Officers whose indefatigable work ensured the outstanding success of the Twelfth Australian Congress.

Listed herewith are the names of the various Committees and persons who devoted their energies to the success of Congress:—

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#### ORAL SURGERY AND ANAESTHESIA:

*Chairman:* Professor A. J. Arnott.

*Vice-Chairmen:* Dr. Roy Cash, Vic., Dr. George Christensen, Qld., Dr. T. D. Campbell, S.A., Mr. G. D. Henderson, W.A., Mr. G. L. Hurburgh, Tas.

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*Vice-Chairmen:* Dr. Kenneth T. Adamson, Vic., Dr. V. P. Webb, Qld., Dr. P. R. Begg, S.A., Mr. K. F. Henderson, W.A., Mr. C. V. Hill, Tas.

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*Directors of Lectures and Clinics:* Dr. F. E. Helmore, Mr. C. C. Croker.

*Liaison Officer, Dr. Wilfrid Terrell:* Dr. R. N. McMullin.

*President's Aide:* Mr. G. Lonsdale.

*Honorary Photographer:* Mr. E. Slater.

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In addition, deep appreciation is recorded for the contributions made by the various lecturers and clinicians listed on the Official Programme, and whose names appeared in the June issue of this Journal.

Special thanks are due to the following persons who assisted during Congress:—

Mr. G. Faunce Allman, Organist, and Mr. J. D. Gordon, Carillonist, for their services at the Opening Ceremony.

The Superintendent, Mr. C. C. Croker, the Matron, Miss C. Frederick, and nursing staff of the United Dental Hospital of Sydney, who assisted so ably during the oral surgery and periodontia clinics and the television sessions; the management and staff of Amalgamated Wireless (Australasia) Ltd. for the provision of all facilities for the television programme; J. D. Handley & Co. Pty. Ltd.; Mr. J. A. Bice, President of the S.U.D.U.A., and the Student Associates, who assisted during Congress.

Mr. G. Baxter and staff; Mr. L. Blackler, Mr. P. Blackwell, Mrs. E. P. Bollen, Mr. R. T. Boyd and staff, Miss B. Crowe, Mr. K. Fidden (for technical advice and assistance with special tape recording apparatus), Miss G. Finch, Miss M. Giles, Miss E. Grimshaw, Mr. E. Haverfield, Mr. G. Heyden, Mr. A. Humphries, Mr. T. Jones, Miss E. Laws, Miss K. Oding, Miss Z. Phillips, Mr. P. Rolfe, Mrs. G. H. Sautelle (for special services rendered in connection with ladies' entertainment), Miss D. Staples, Miss C. Taylor, Miss E. Tebbutt, Mr. J. Utz, Mr. F. Webster, Mrs. N. Wilson, Miss M. Wood, and the staff of the Australian Dental Association (New South Wales Branch); Mr. W. A. Grainger, for the provision of a projector, and to Miss B. M. Robinson, Miss A. P. Savage, Miss B. M. Sengleman, for their assistance.

Our thanks are also due to the Rt. Honourable the Lord Mayor, Alderman E. C. O'Dea; the Town Clerk, Roy Hendy, Esq., C.M.G., and officers and staff of the Town Hall for assistance and co-operation during the arrangements for the Congress Exhibition; to the Commonwealth Film Censor for the expeditious release of films used during Congress; to Commonwealth Industrial Gases (N.S.W.) Pty. Ltd. for technical assistance in the projection of films; to Kodak (A/sia) Pty. Ltd.; to British General Electric Co., Watson Victor Pty. Ltd., Flavelles Dental Pty. Ltd. for various facilities which were made available for the Scientific Exhibit; to the Senate and Registrar of the University of Sydney, for making available its facilities for the use of the Congress Commission and the many delegates who attended Congress; to the Presidents and Boards of Control of the United Dental Hospital of Sydney, Royal Prince Alfred Hospital, Sydney Hospital and St. Vincent's Hospital for the provision of facilities for the presentation of clinical material; to the press, the national and commercial broadcasting stations for reporting various aspects of the Congress activities, and to the representatives of these organisations who were assigned to Congress; and to the management of the various Sydney hotels and guest-houses, and the Bank of New South Wales (Travel Department), who co-operated at a most difficult time, in providing accommodation and service to so many of our interstate and country visitors; and, finally, to the wives of many of our Sydney members who graciously acted as hostesses for Congress visitors.

For and on behalf of the Congress Executive,

J. V. HALL BEST, President.

R. HARRIS, Secretary.

## Correspondence

### "AIRBRASIVE"

Sir,

With the Airbrasive unit and its method of cutting tooth substance a popular topic at the moment, I thought it might be of interest to offer some observations that I recently made on its use in the U.S.A. At the Dental Congress in Sydney last month a film showing this machine in use and an outline of its possibilities was presented. This was an excellent film but I feel that it gave a more optimistic side of the picture than the findings by unbiased investigators, who have been trying it out in various Dental Schools in the U.S.A., would indicate. My personal experience was limited to watching others use it and talking to people who had been using it for periods up to six months. Their view was more cautious than that expressed in the film.

The following are points which I think are of interest:—

1. It is not painless—less painful than a bur, yes—but painless, no. The film mentioned the need of local anaesthesia in cutting jacket crown preparations when approaching the dentino-enamel junction. This applies to similar situations elsewhere, e.g., in cutting gingival third cavities: these cavities mostly still require the use of local anaesthesia.

2. It is almost essential to have direct vision—the use of a mouth mirror is extremely difficult. At the first burst of abrasive powder the mirror becomes clouded and wiping causes it to scratch so that it becomes permanently "fogged." Upper molars, therefore, are quite difficult to prepare, as are any comparatively inaccessible cavities. I notice that in the film cavity preparation was by direct vision and mostly on lower teeth.

3. Loss of tactile sense is particularly evident, as for instance, buccal cavities in molars: when using a bur, these are often partially prepared by tactile sense and are almost impossible with the machine.

4. The abrasive stream cuts amalgam only with difficulty. The accepted technique to remove amalgam is to cut the tooth around the edge of the amalgam. You may have noticed in the film that a groove was cut in an amalgam restoration—the film showed the abrasive stream starting and the next picture showed the finished cut but I am sure that there was a considerable time interval in between that was not shown in the film. Gold is practically impossible to cut. Soft caries is not affected by the abrasive, although this is probably not a disadvantage. The risk of pulp exposures in deep cavities is somewhat minimized thereby.

5. I am very surprised at the emphasis placed on the speed of the cutting and the whole operation in the film. Dam must be used in all cases. This is no disadvantage but it does mean that the total time involved in placing the dam and protecting the adjoining teeth with stainless steel matrix bands is somewhat more than in the use of a bur without rubber dam. Also, the cutting is not as rapid as one would expect. It takes quite a time sometimes to make the initial cut. Rather surprisingly, wearing down a bulk of enamel—such as preparing a tooth for a full crown—was not particularly successful. Most of the operators with whom I spoke were inclined to the view that the best way to use the machine for this type of work was to score the surface with lattice-type grooves and then chip off the enamel with a chisel. This is pretty hard to do and at the same time get each groove exactly the same depth. There was a great risk of leaving an uneven and undercut preparation.

6. The unit is very good for prophylaxis work, particularly to remove stains in the occlusal surface of molar teeth. The effect is quite spectacular; however, it has no effect subgingivally and the usual scaling instruments have to be used in that situation. The abrasive stream bounces off soft tissue with no ill-effects unless left on for quite a time.

7. The lack of vibration is a very big factor. It is much easier in both patient and operator. Patients much prefer the machine and that factor alone is very important in that it may entice otherwise reluctant patients to seek dental care.

8. As far as the unit itself goes, it is very bulky but I would say that this will be overcome. The ideal would be to have the unit in the laboratory with pipe lines leading to the nozzle and suction hood, so that the dentist could use either bur or Airbrasive with equal ease. It is quite economical on both abrasive powder (aluminium oxide) and propellant (carbon dioxide). The nozzles have been specially developed and are very wear-resistant. There has been a suggestion to colour the abrasive a contrasting colour, as it is at present tooth colour and very hard to see. The hood retrieving apparatus is fairly effective although, after a day's use in a small room, I noticed that there was a fine layer of powder over everything. The manufacturers say that there is no risk to the operator from this dust, as aluminium oxide is itself a cure for silicosis. Research is at present being done on this aspect.

In conclusion, the general view of operators who had experience with the unit was that it may become a valuable adjunct to dental practice. It cannot replace a bur and it cannot cut a complete tooth preparation by itself. Hand instruments and/or burs are necessary to complete cavity preparation. It must be used with great care to avoid either very poor or catastrophic preparations. It may become valuable for prophylaxis if it is proved that there is definitely no danger of loss of tooth substance. It has a very good psychological effect on the patients and helps them overcome their fear of the dental chair. All operators with whom I spoke were agreed that we should approach the machine with caution at the moment, although it has many possibilities that have yet to be fully investigated. They regarded it as still in an experimental stage.

Sincerely yours,

EARLE H. BASTIAN.

Martin Place, Sydney.

September 6, 1950.

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## News and Notes

### GILBERT DOWLING HENDERSON

This well-known member of the profession received the honour of Commander of the Order of the British Empire (Civil Division) in the recent King's Birthday List.

Mr. Henderson is very active in the dental sphere in Western Australia and has delivered quite a few papers at Australian Congresses as well as given demonstrations. He has played an important part in the development of the Dental School and Hospital in Perth, and was especially renowned during the war for his work in the Plastic Surgery Unit at the Heidelberg Military Hospital. During that period at Heidelberg he developed an artificial hand which is regarded as a masterpiece. Mr. Henderson is considered one of the most skilful dentists in this country.

### **SURGEON COMMANDER (D.) JOHN ELLIS RICHARDS, R.A.N.**

Surgeon Commander Richards has been honoured with the title of Officer of the Order of the British Empire (Military Division).

In 1916 John Ellis Richards took his degree in dentistry at Melbourne University. His first appointment in the Royal Australian Navy was as Surgeon Lieutenant (D.) in 1924, and he saw service in H.M.A.S. "Australia," commissioned in 1928, under Admiral Mountevans.

In 1930 he was promoted to Surgeon Lt.-Cdr. (D.), and the following year was appointed Senior Dental Officer at Flinders Naval Depot. His next sea-going appointment was in the flagship, H.M.A.S. "Canberra," with the rank of Commander.

Surgeon Commander Richards served during the war in the Mediterranean, South China and Java Seas in H.M.A.S. "Hobart" when the Japanese were infiltrating Malaya and Dutch East Indies.

His present appointment is as Command Dental Surgeon on the staff of the Admiral Superintendent, N.S.W.

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### **CONGRESS PHOTOGRAPHS FOR SALE**

In this issue of the Journal two photographs appear, recording certain stages of the Official Opening of the Twelfth Australian Dental Congress. Copies of these photographs and others are available and may be inspected at the Offices of the Association. The cost of prints are:—

8in. x 6in., 5/6 each; 10in. x 8in., 6/- each; 12in. x 10in., 7/6 each.

---

### **FOR SALE**

A fine two-storey home in Sydney's Western Suburbs. This property is ideally suited for a DENTAL or MEDICAL PRACTITIONER.

The house is facing busy thoroughfare and is in perfect condition. There are three bedrooms, lounge, dining, kitchen, office, also TWO SURGERIES, WAITING ROOM and LABORATORY.

Purchaser can take over present Dental Practice and Surgery Equipment if desired.

Price £9,000. Full details from Jack Zuber, Real Estate Agent, 164 Pitt Street, Sydney. MA 7345.

## DENTAL MECHANICS' STATE AWARD

### Annual Picnic

Members are notified that the Annual Picnic, as provided for in the Dental Mechanics' State Award, will be held at Clifton Gardens on Monday, 20th November, 1950.

Your executive desires to bring this notice before members in the hope that every effort will be made to encourage employee technicians to avail themselves of the opportunity of attending this function.

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## Association Activities

### AUSTRALIAN DENTAL ASSOCIATION (NEW SOUTH WALES BRANCH)

Extract from the Minutes of the Meeting of Executive Committee held in the Council Room, B.M.A. House, 135-137 Macquarie Street, Sydney, on Tuesday, 8th August, 1950, at 7.30 p.m.

#### Membership:

*New Members:* It was resolved that the following dental practitioners, whose applications were in order and who had paid the requisite subscriptions, be admitted to membership of this State Branch as from 8th August, 1950:—

Clark, Peter Thomas, B.D.S.; Charlton, Douglas Edward, B.D.S.; Crichton, Grant, B.D.S.; Flanagan, John James, B.D.S.; Haines, Gordon Walter, B.D.S.; Hickey, Francis Adrian, B.D.S.; Irvine, Kenneth James; Keating, Brian, B.D.S.; Mason, Norman Wilfred; Mehigan, Daniel John, B.D.S.; Payten, Aubrey Harold; Proctor, Raymond L.; Seymour, Barry Joseph, B.D.S.; Schwarz, Walter, B.D.S.; Tait, John Rene, B.D.S.; Webb, Kenneth Roberts, B.D.S.; White, William Leslie, B.D.S.

*Restricted Member:* It was resolved that C. E. F. Hughes, Esq., of 164 Belmore Road, Randwick, be granted restricted membership of this State Branch.

(Due to the necessity for publishing Congress proceedings as early as possible, the information on the Branch Executive Meeting has been restricted.)

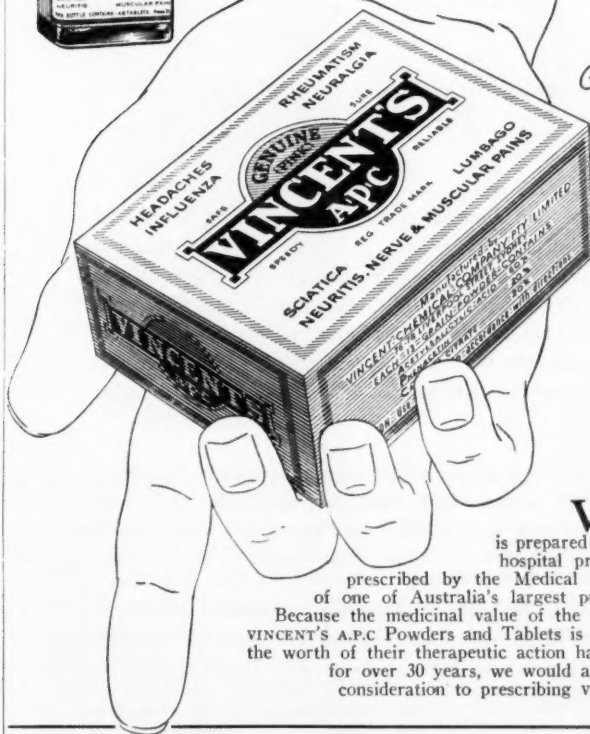




**Prepared to a  
prescription worthy of  
your recommendation!**

*Rx Aspirin  
Phenacetin  
Caffeine Cit.*

*in the same  
scientific  
proportions as  
the original  
hospital  
prescription*



**V**INCENT'S A.P.C. is prepared to the original hospital prescription first prescribed by the Medical Superintendent of one of Australia's largest public hospitals. Because the medicinal value of the constituents of VINCENT'S A.P.C. Powders and Tablets is recognised and the worth of their therapeutic action has been proved for over 30 years, we would ask you to give consideration to prescribing VINCENT'S A.P.C.

### **WHEN TO PRESCRIBE VINCENT'S A.P.C**

1. **BEFORE PATIENT** appears at the Surgery, to reduce the fear complex usually associated with dental operations.
2. **AFTER OPERATIONS**, to alleviate post-operative pain.
3. **FOR RELIEF OF HEADACHES**, either from neuralgic or systemic origin.

VINCENT'S contains Aspirin to relieve the pain, Phenacetin to reduce the temperature and Caffeine to stimulate the nervous system.

**Recommend Vincent's A.P.C with Confidence!**



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It is over one hundred years ago, since the firm of Flavelles was established in Sydney . . . the first in Australia to seriously make a study of the material needs of the Dental Profession. To-day, Flavelles Dental Pty. Ltd. is carrying out the ideals of its Founders, by giving a Service in keeping with the true tradition of men of courage and vision, for it was upon Service that the Flavelle organisation was built.

Service is not a product that can be packed and wrapped . . . it is something that can only be developed by conscientious and tireless effort and the moral obligation to "Keep Faith."

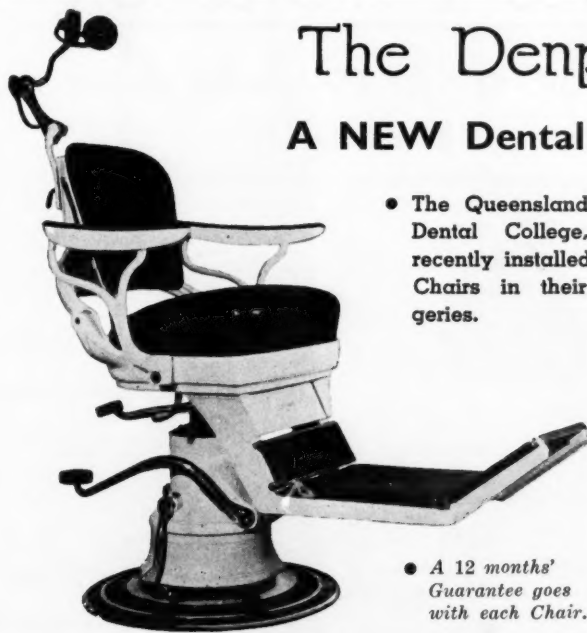
To you, Flavelles pledges the continuous efforts of members of its organization in carrying out a real Service, in accordance with high ideals of The Dental Profession in Australia.

# FLAVELLES

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a n d   N E W C A S T L E



# The Denpro

## A NEW Dental Chair

- The Queensland University Dental College, Brisbane, recently installed 50 Denpro Chairs in their new surgeries.

- A 12 months' Guarantee goes with each Chair.

- Designed with care, the Denpro Chair does not depart from the standard type but improvements have been made wherever possible.
- The Chair is streamlined, yet the Seat offers sufficient width and depth for both normal and extra large patients.
- The Head Rest is entirely new to Australia: it is graceful in appearance, easy to manipulate, and is adjusted with finger pressure.
- Finished in Baked Enamel with extra hard glossy finish, ensuring a good permanent appearance and in harmony with modern dental equipment.


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Manufactured by  
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BRISBANE  
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ASK YOUR DENTAL SUPPLY HOUSE FOR A DEMONSTRATION

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All Sickness and Accident Cover



*The* AUSTRALIAN  
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INSURE YOUR HEALTH **A·P·A** AS WELL AS YOUR LIFE

£10 or £12 per week for disablement by any sickness or accident.

Special protection for forefingers and thumbs.

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BW 4201 (5 lines).

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### **MUCO-SEAL**

Gives a perfect impression of the tissues in rest position.

### **WAX ELIMINATOR**

**Cleans wax off teeth—cleans wax off investment.**

Especially prepared for use with acrylic teeth and fully recommended for its absolute safety.

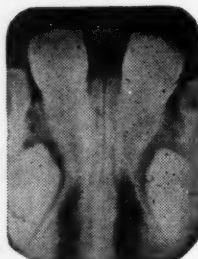
### **DENTA-PEARL CYCLO-MOLD TEETH**

Are the Hardest, Strongest, Densest plastic teeth ever made ; are duplications of natural teeth—not reproductions.

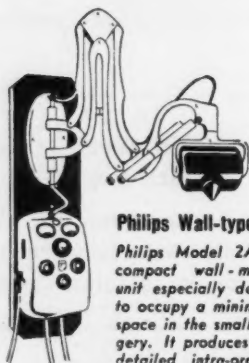
Unconditionally guaranteed for full dentures and all prosthetic cases.

*Prime Distributors in Australia :*

**ASSOCIATED DENTAL PRODUCTS PTY. LTD.**  
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## What would have been your diagnosis?



### Philips Wall-type Unit

*Philips Model 2A is a compact wall-mounted unit especially designed to occupy a minimum of space in the smaller surgery. It produces highly detailed intra-oral and jaw radiographs quickly and easily.*



1. The hidden caries.
2. The distressing supernumerary.
3. The unexpectedly absent permanent tooth.

The negatives above are actual reproductions of X-Rays taken by a leading Macquarie Street Dental Surgeon, whose diagnoses are listed above.



What would have been your diagnosis without efficient X-Ray? These negatives clearly reveal the many unsuspected dangers that can be detected only by X-Ray.

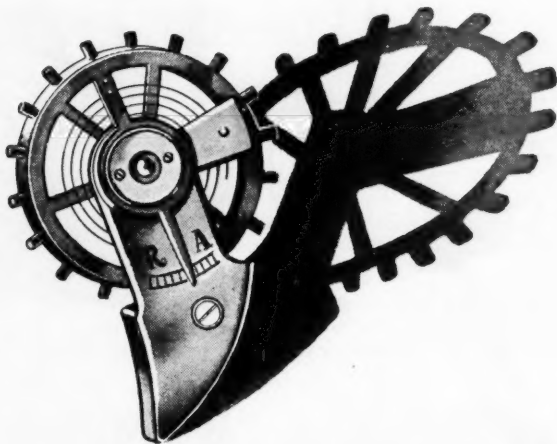
That's why it is always a sound principle to X-Ray your subject if you are not quite sure of its case history.

# PHILIPS DENTAL X-RAY APPARATUS

PHILIPS ELECTRICAL INDUSTRIES OF AUSTRALIA PTY. LTD.  
SYDNEY • MELBOURNE • BRISBANE • ADELAIDE • PERTH

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You control the time factor when you use "Kallodent" denture base materials. At 60°F "Kallodent" 222 gives a working time of two hours; "Kallodent" 333 gives 12 minutes. *But a blend of the two, in varying proportions, will give you the choice of any working time between these limits.*

You can make the fullest use of this "Kallodent" versatility because you can always depend on the behaviour of "Kallodent" under given conditions. Every phase of production is controlled with mathematical precision by the man who first evolved "Kallodent" in the I.C.I. laboratories. And every stage of processing has been standardised for you, after exhaustive research, by our dental department. The skill of the scientist is an invisible ingredient in every "Kallodent" pack. That is why

## **"KALLODENT"** *is consistent*

### **"KALLODENT" 222**

Slow doughing, for all climates.

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Quick doughing, for temperate and cold climates.



*A full and free technical service is available at your request*

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## Local Anaesthesia

**No longer a luxury, but a recognised medium in modern practice. A comfort to operator and patient alike.**

**For Perfect Results, use :**

### **Dentosthetic Procaine**

(In two strengths : 1/1600 and 1/3000 adrenalin)

### **Dentosthetic Cocaine**

Anaesthetic of outstanding merit

Obtainable from all regular Dental Depots or the Distributors :

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"Newlands House"

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●  
Phone : M 6794



## Pain

is the last straw that breaks the patient's fortitude.

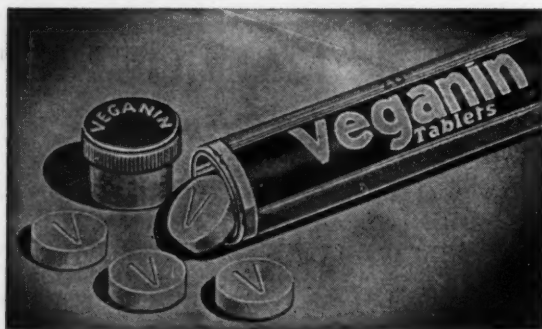
The more promptly he can be relieved of pain the greater will be his appreciation and the more lasting his confidence in the dentist.

VEGANIN serves as a satisfactory and comprehensive treatment for all types of dental pain, and it may be used profitably as a sedative before extractions.

Therapeutically considered, Veganin fills a well-defined need in dental practice.

Veganin Tablets are supplied in tubes of 10 and 20 tablets.

Quantities of 100 tablets are available for Professional use.



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# OXYCEL

## *Use in Dentistry*

OXYCEL designates oxidized cellulose prepared from various materials, such as gauze or cotton by a special process of oxidation which converts unoxidized cellulose into polyanhydroglucuronic acid—an absorbable haemostatic chemical.

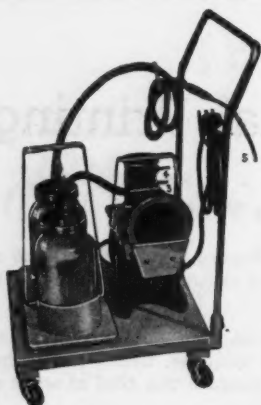
OXYCEL, supplied as individual, sterile pads, effects prompt haemostasis when applied to oozing surfaces, and when left in contact with incised tissues is readily absorbed. When wet with blood it becomes slightly sticky and swells, forming a dark-brown, gelatinous mass. As soon as this discolouration occurs, bleeding usually ceases.

*Most dentists cut Oxycel into nine equal pieces and place them in a sterile amalgam bottle ready for use.*

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## CLEMENT'S ELECTRIC ASPIRATOR (SUCTION UNIT) MOUNTED ON TROLLEY For Use in Exodontia and Oral Surgery

Adequate Suction necessitates the removal of large quantities of air to maintain sufficient negative pressure to be effective.

Quietness and Long Life necessitate slow-moving parts.

This pump fulfills the above requirements, as it has large capacity, 40 litres of free air per minute, high vacuum, 29.7" H.G., and low speed, 350 r.p.m.

Vacuum Control can be fitted if required, so that suction can be set to any required degree, from the gentlest suction up to 29.7" H.G.

### ADVANTAGES IN USE

Sponging with consequent risk of traumatization is eliminated.

Visibility of operative field is maintained by rapid removal of blood, saliva, etc.

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## Faulding's ISOTONE LIQUID

Clinical demonstrations have shown Isotone Liquid to fulfil our expectations.

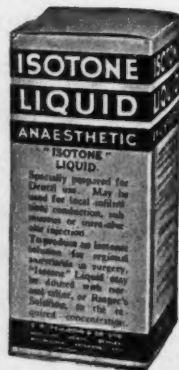
Reports from practitioners throughout the Commonwealth speak highly of its rapid and profound anaesthesia with total absence of toxosis and unpleasant post-operative troubles.

Isotone Liquid possesses all the qualities of a freshly prepared solution, and its self-sterilising non-toxic base ensures its keeping properties.

Isotone Liquid represents 2% Procaine Hydrochloride, 1-40,000 Adrenalin Chloride in an isotonic isotonic (pH 6.5) self-sterilising base.

2-oz. Vacuum Sealed Bottles ... 4/2 each

Less 10% for 1 dozen bottles.



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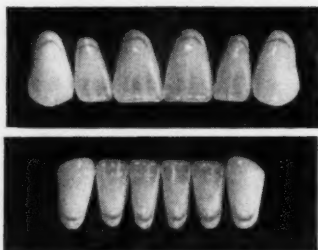
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# *Acryl Art*

(ACRYLIC)

### ANTERIORS & POSTERIORS

have  
these outstanding  
features:—



- Perfect Translucency
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- 30 Well designed patterns
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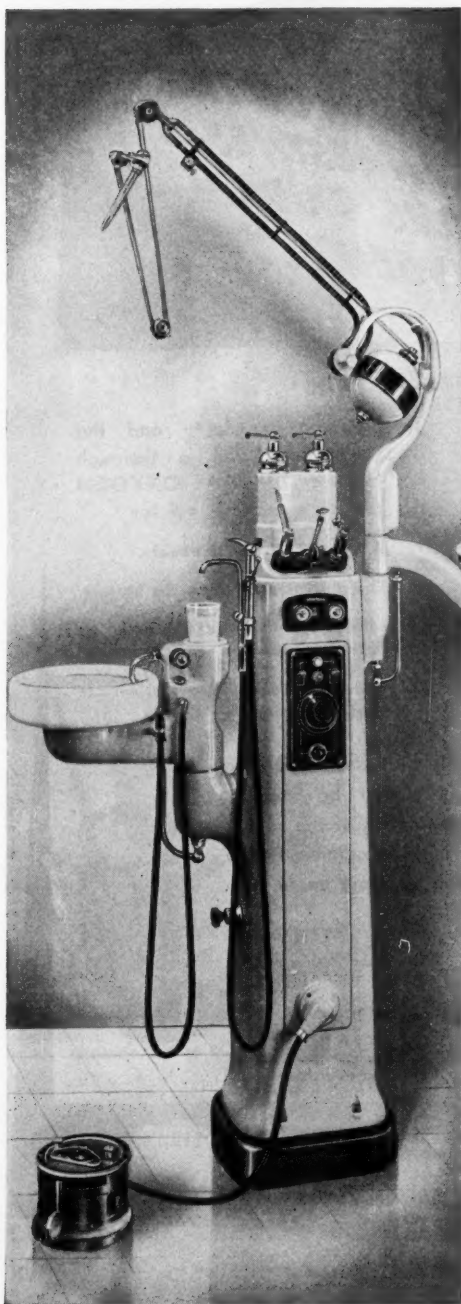
## The tooth of tomorrow — Today

# *Acryl Art*

Obtainable from the following Sydney Dental Houses:—

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# *The* **Sterling** Dental **UNIT**

## **BRITISH MADE**

A masterpiece of graceful design, convenience and efficiency. Embraces a full range of electrical, air and water appliances.

**NOVEL FEATURE** — the complete electrical circuit of the Unit is mounted on a single removable panel. This greatly simplifies installation and maintenance.

**Order from your Dealer**

**THE AMALGAMATED DENTAL  
COMPANY LIMITED**  
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**MELBOURNE and SYDNEY**

# A MESSAGE TO DENTAL STUDENTS ON THE SUBJECT OF ANAESTHESIA WITH NITROUS OXIDE - OXYGEN ---



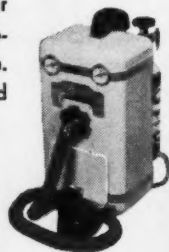
Illustrated above is the  
C.I.G. Anaesthetic  
Apparatus Type A/1.

The growing popularity and the consequent need for a thorough knowledge of GAS-OXYGEN Anaesthesia are attributed to:

- (a) Absence of harmful effects.
- (b) Rapid elimination from the system.
- (c) Suitability for extraction of abscessed teeth.
- (d) Non-interference with the normal bodily functions.

For the best results with Nitrous Oxide-Oxygen, the Dentist must be familiar both with the manipulation of the equipment and the technique of administration. Both, however, can be most easily and quickly mastered.

Illustrated at right is the  
Portanox Anaesthetic  
Apparatus.



Further information will be gladly forwarded in response to a 'phone call to MU 2211.

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A Subsidiary of  
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A harmonious pattern of contrasting form and color brought to its ultimate of beauty by a transparent cap of dew.



*No better  
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Dr. Myerson's teeth are made to follow nature's own formula where beauty of form is combined with nature's own dentine colors showing softly and lustrously through a transparent enamel. This remarkable duplication of nature's beauty is integrated with maximum ceramic strength. This masterpiece has been imitated the world over but *never equalled*.

*Dr. Myerson's*

TRUE-BLEND ANTERIORS • TRUE-KUSP POSTERIOR

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Say you saw it in "The Dental Journal of Australia".

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. . . in 1 lb. and 4 oz. bottles

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. . . in 1 lb. and 5 oz. bottles

**NOVUTOX**, in 2 oz. bottles

**NOVUTUBES**, 2% and 3% in boxes of 100

**FOR YEARS HAVE RETAINED THEIR HIGH  
STANDARD AS DENTAL ANÆSTHETICS**

## *Good news for the users of* **GYP SO GUM**

THIS UNEXCELLED IMPRES-  
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FROM OVERSEAS AGAIN

**For All Your Dental Requisites**

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# YOUNGSTERS are EASIER to HANDLE WHEN the REWARD is a 'GOOD TEETH' CERTIFICATE



This "Good Teeth" Certificate featuring the Walt Disney characters, has been specially designed for you to give to your child patients after treatment or regular inspections

Issued by the makers of **S.R. Toothpaste**  
If you have not already received an issue of these certificates or require a further supply, just fill in the coupon below and forward to "Certificate", Box 1590, G.P.O., Sydney.

**Free!**

Please forward supplies of the S.R. "Good Teeth" Certificate to

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## Traditional Calcium and Vitamin D Therapy

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with the added features of —

### ● Better Absorption

1. Rapid disintegration.
2. Use of a calcium salt readily soluble in the acid stomach secretions.

### ● Iron and Vitamin B<sub>1</sub>

Added to enhance the therapeutic value of the tablet as the daily requirements of these factors are markedly increased during pregnancy and are often difficult to meet by dietary measures.

# 'Calvita'

#### EACH TABLET CONTAINS

Tri Calcium Phosphate	grs. 7½. (0.5 gm)
Ferrous Sulphate	grs. 1/6 (10 mg.)
Vitamin B <sub>1</sub>	333 int. units (1 mg.)
Vitamin D	500 int. units



A Nicholas Ethical Product

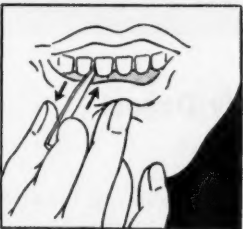
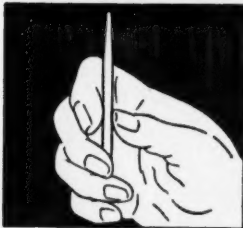
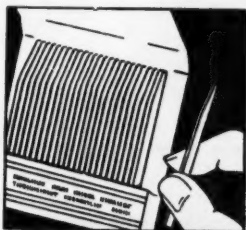


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**Firm Gums — Healthy Teeth!**



- MEDICATED  
GUM MASSAGERS  
FINISH WHAT THE  
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FOR TREATMENT  
OF ALL GUM  
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# **PORTEX**

## **"Co-pol" Denture Base**

Ethyl-methyl methacrylate Co-Polymer

### **FRACTURE-RESISTANT**

having all the well-known attributes of acrylics

PLUS very much greater RESILIENCE

(Light, Mid and Dark Pink and Clear)

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"Trilene" Brand of Trichloroethylene

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*For Anaesthetic or Analgesic*

"Trilene" is a specially purified and stabilised form of trichloroethylene prepared by Imperial Chemical (Pharmaceuticals) Limited for anaesthetic and analgesic purposes. It may be employed as an anaesthetic to maintain a light plane of narcosis or as an analgesic without loss of consciousness. Administration is safe, rapid, and pleasant and recovery is usually without any unpleasant after-effects. It will thus be noted that "Trilene" is invaluable in dental practice.

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Say you saw it in "The Dental Journal of Australia".

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# CO-AG and CO-AG-SED

CLINICALLY-PROVED DENTAL HAEMOSTATICS

**... For Positive Control of Haemorrhage and Relief of Post-Operative Pain & Soreness**

**REASONS WHY**  
*you may prescribe or use CO-AG and CO-AG-SED with CONFIDENCE*

- 1 Fully proved by clinical test, for the prophylaxis and treatment of dental haemorrhage.
- 2 Co-Ag is orally administered and quick in action.
- 3 Non-toxic, non-irritant, entirely reliable.
- 4 Co-Ag gives positive haemorrhage control.
- 5 Co-Ag-Sed quickly relieves post-operative pain.
- 6 Co-Ag-Sed allays natural stiffness and soreness.

MEDICUS  
PRODUCT No. 2  
**CO-AG**  
FOR PREVENTION AND  
TREATMENT OF  
DENTAL  
HAEMORRHAGE

CO-AG and CO-AG-SED are indispensable to the busy practitioner. They are available from Chemists and Dental Depots.

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MEDICUS  
PRODUCT No. 3  
**CO-AG-SED**  
TO RELIEVE  
DENTAL PAIN  
AND CONTROL  
HAEMORRHAGE

## SOFT PLASTIC BASE DENTURES

A new and highly successful technique has been developed by this laboratory for processing Polyvinyl Chloride (P.V.C.) Soft Bases to Acrylic Dentures.

**Polyvinyl Chloride Mouthguards also Constructed.**

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# AUSTRALIAN MILITARY FORCES VACANCIES FOR DENTAL OFFICERS

Applications are invited from legally qualified male dental practitioners for appointment to short service commissions in the Australian Regular Army as dental officers.

The terms of appointment are as follow:

- (a) Duration of appointment: Two years. Applicants may elect to serve for one additional period of two years.
- (b) Rank on commencement: Captain.
- (c) Pay and allowances: The following schedule shows the daily rates of pay and allowances:

Detail	Officers not eligible for marriage allowance		Officers eligible for marriage allowance		
	Living in Camp	Living out of Camp	Living in Camp	Living at Home	Living out of camp and away from Home
1. Rate of pay .....	39/9	39/9	39/9	39/9	39/9
2. Uniform allowance ..	1/3	1/3	1/3	1/3	1/3
3. Marriage allowance ..	—	—	4/9	4/9	4/9
4. Provision allowance ..	—	—	—	4/-	—
5. Separation allowance ..	—	—	3/-	—	3/-
6. Living-out allowance ..	—	6/3*	—	—	9/-
	41/-	47/3	48/9	49/9	57/9

\* 7/6 per day is payable for the first 30 days.

In addition to the rates set out above, an increment of 3/- per day is payable after two years' service, and a further 3/- per day after 4 years' service in the rank of Captain. (Note: Applicants with previous full-time service in the rank of Captain or equivalent may count such previous service for the purpose of computing these increments.)

(d) Gratuity:

- (i) A gratuity at the rate of £125 per annum will be payable on completion of the total period of service (i.e., either two or four years).
- (ii) In the event of a dental officer's death or total incapacity (not due to causes within his own control) the gratuity of £250 for a dental officer appointed for two years, or £500 for a dental officer appointed for a further two years, will be paid either to the wife and/or children in the case of death, or to the officer in the case of total incapacity.
- (iii) In the event of the officer's partial incapacity (not due to causes within his own control), a proportionate gratuity pro rata to the length of his service will be paid to the officer.
- (e) Retirement Benefits Fund: Dental officers serving on short service commissions will be required to contribute to the Defence Forces Retirement Benefits Fund.
- (f) Uniform: An initial issue of clothing and necessities will be free.
- (g) Medical Standard: Applicants will be required to pass the approved medical examination.

**Applications should be made in writing to THE SECRETARY, Department of the Army, Victoria Barracks, MELBOURNE, S.C.1.**

W E E

# NOVUTOX

*Self-Sterilising Local Anaesthetic*

*for*

**RAPID, DEEP & LASTING  
ANAESTHESIA**



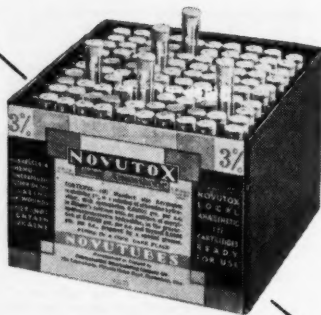
**2% NOVUTUBES**

for routine dental  
procedures

**3% NOVUTUBES**

for difficult extractions

For those cases in which more rapid onset with profound depth and very prolonged anaesthesia is required, the Dental Surgeon will appreciate the value of NOVUTOX 3% Self-Sterilising Local Anaesthetic which provides completely efficient pain control for the longest dental operations.



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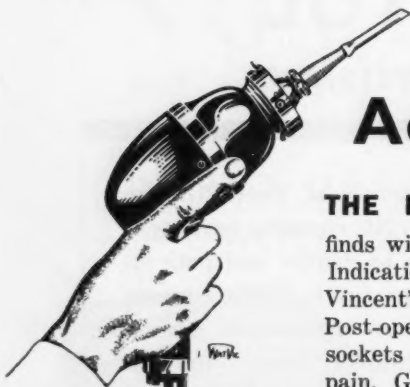


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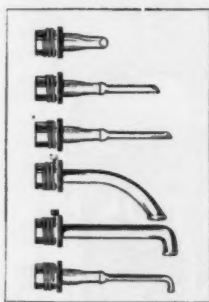
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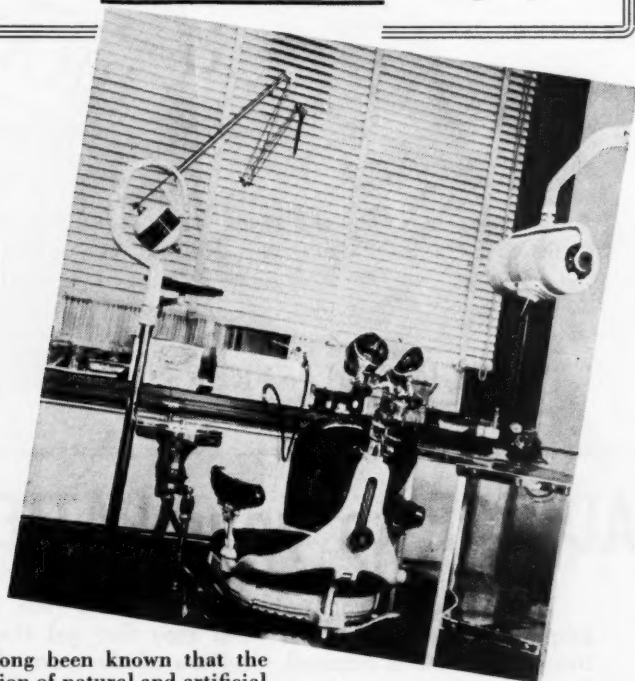
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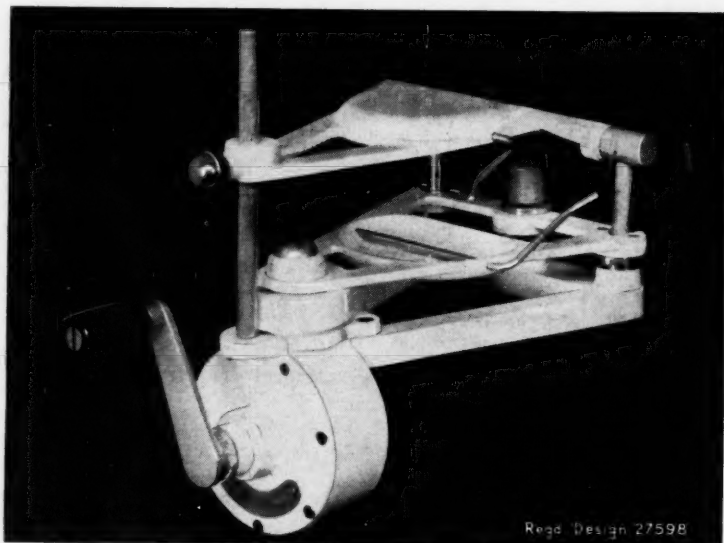
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